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ABSTRACT

In 1972, a study was undertaken to test the reactions of media-inexperienced children in the Jamaican highlands to their first exposure to video-cassette-delivered episodes of "Sesame Street." Children were randomly selected from three different age groups: three to five-year-olds, six to eight-year-olds, and nine to eleven-year-olds. Groups of 15 age-grouped children were placed in a viewing room with a television monitor and with a distractor unit which flashed slides every eight seconds. Children's reactions were video-taped and coded into indices of distraction for each program segment. Data were then analyzed according to overall attention patterns and attention as a function of program structure, age of subjects, and viewing week. This report describes in detail the methodology employed and results obtained. (EMH)

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THE JAMAICAN PROJECT

Final Report

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The Jamaican project was made possible through the joint activities of several organizations. The Ken Foundation and the John and Mary Markle Foundation provided research grants to fund field operations and data analysis. The Sony Corporation and the Suzuki Corporation provided the mobile video units, as well as other equipment and staff assistance in the field. The Children's Television Workshop provided video educational material and staff assistance in project coordination and supervision. Finally, the Center for Research in Children's Television, Harvard University, was responsible for the scoring and analysis of attention data from Jamaica.

The success of this project depended in great measure on the active cooperation of several organizations in Jamaica. The Ministry of Education supervised the project's field operations. The Office of the Prime Minister, Ministry of Labor, and Ministry of Youth and Development provided general support for the project. The Jamaican Information Service provided technical assistance and staff support for the mobile units. The Jamaican Broadcasting Service facilitated equipment shipping and storage, and provided overall project assistance. The Department of Education, University of the West Indies, contributed technical advice and support. Finally, the teaching staffs at St. Peter's, Hall's Delight, Tower Hill, Hagley Gap, and Ness Castle provided tireless assistance in collection of data.

There are scores of individuals who contributed to the Jamaican project. We can only name some of them here. We are particularly indebted to the following Jamaicans for their support: Mr. Clifton Smith, Ministry of Education; Mr. Kenneth Williams, Jamaican Information Service; Mr. Carey

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Part I: Introduction

1.0 Background

Every year television is becoming a more pervasive medium in the world. While it has frequently been used for entertainment, sophistication about the educational use of television also grows yearly. Increasingly, populations beyond the reach of television are beyond certain educational opportunities as well.

In 1972 the Sony-Suzuki Corporations had completed the development of a remarkable system for bringing television to remote areas of the world beyond the reach of electricity or a broadcast signal. The Sony Corporation had developed a videocassette recorder, a portable machine which could play an hour-long color television program from a relatively indestructible plastic cassette. Cassettes seem ideally suited to uses in remote areas where they protect videotapes from damage by dust, heat, humidity, and general handling. The Suzuki Corporation had recently perfected a miniaturized jeep which could carry the videocassette system to the most inaccessible areas in mountainous or jungle terrains.

The development of this mobile videocassette system seemed to make possible the extension of television to remote areas. In order to assess the viability of the idea of mobile educational television in inaccessible areas,the Sony Corporation approached the Children's Television Workshop with the idea of a joint project in which Sesame Street would be shown in a remote area through the use of the Sony-Suzuki mobile-video Jimny unit. For the Sony and Suzuki Corporations, the project would afford an opportunity to field test their equipment and to observe the general reactions of villages to mobile television. For the Children's Television Workshop, the project offered a unique possibility: a chance to observe the reactions to television of children who had never before viewed it.

This opportunity was particularly interesting for CTW because it would allow the study of the attention patterns of children with low levels of "media literacy" - a capacity to interpret the meaning of visual techniques. Although over 50 countries now broadcast various versions of Sesame Street, its success abroad was completely unanticipated. The program was originally intended for an urban American audience: 3 to 5-year-olds in the inner -city. The program was intended to compete effectively with other types of television available on American channels: movies, cartoon shows, and other programs for children. To capture and hold attention, Sesame Street has purposely made use of every available television convention; in fact, the program has invented some. It employs a lexicon of television formats familiar to the experienced television viewer - zoom-ins, cuts, split-screens, fade-outs, animation, stop-action, thought-balloons, as well as a number of less familiar techniques including chroma-key, rippled effects, electronic bridges, computer animation, pixillation, word-matting, and abstract animation.

For the American child these techniques do seem to grasp and hold attention. But what about the viewing habits, skills and "media literacy" of children in other countries currently showing the program? Does the program expect too much media sophistication? Does it assume a level of media literacy which children with less exposure to the media simply have not acquired? On the other hand, can children develop a sufficient media literacy to learn from the program? If so, how long does this take? These were important questions for CTW, which was then assisting in the cross-cultural adaptation of Sesame Street.

The mobile videocassette project seemed to offer a perfect package for bringing television to remote areas which had never before viewed. The equipment seemed to offer an ideal opportunity to study systematically the reactions of inexperienced viewers to Sesame Street because the mobile jeep could also carry a camera which could videotape the reaction of children as they watched the program. Thus, CTW, Sony and Suzuki, with overlapping interests, undertook a project to show the program in a remote area, and videotape children watching television for the first time. This report describes what we learned about the reactions of children in remote areas to six weeks of viewing Sesame Street on a mobile videocassette unit.

2.0 The Jamaican Site. Our initial problem was to choose a country appropriate for the study. We wanted a country fairly close to the United States, an English-speaking country where Sesame Street had been shown in previous years and had been well received, yet one which had remote areas without television. Given these criteria, we selected Jamaica.

Jamaica was no stranger to Sesame Street. It was among the first foreign countries to broadcast the program. Today Sesame Street is among the most widely viewed and popular programs on Jamaican television. Yet Jamaica has large pockets scattered throughout the country that are beyond the reach of television. In some of these areas the television signal is eclipsed by tall mountains. In others, electrical power lines have not yet penetrated, even though a signal could be received.

One of the more spectacular areas of non-reception is the Blue Mountains to the east of Kingston. This area of steep, rugged mountains that rise to 7,000 feet, lies within 30 miles of Kingston, the capital. Remote villages perch high atop mountainous ridges and overlook precipitous mountain gorges which drop hundreds of feet to the valley floor below. The towns are accessible only on winding dirt roads which swollen rivers make impassable during the rainy season. Homes in the villages themselves are sprinkled over a wide area. Children reportedly walk as far as 10 miles a day to the school. Pine trees, banana trees, coffee bushes and poinsettias stretch upward in a silence broken only by the echoing horn blasts of trucks negotiating hairpin turns. Here was a remote site well-suited for the proposed experiment.

With the assistance of the Jamaican Government, the Ministry of Education, the Jamaican Information Service, and the Jamaican Broadcasting Corporation, we selected five villages in which we would operate. Most of the children had never viewed television and had rarely seen films. However, electric power was scheduled to reach the villages soon, so we felt they would not be tantalized by something they could never see again.

We set up mobile sites in four of these villages where we would not systematically observe children watching the programs. At the fifth village we arranged a stationary site where we set up a rather complex system to allow us to make videotapes of the children as they watched Sesame Street.

The stationary site offered the best possibility to generate data about how inexperienced television viewers react to different types of program material. Our methodology here was rather simple. By mounting a videotape camera above the television set, we could have a permanent record of the children's attention patterns as they watched the program. Rather than attempting to make scorable observations in the field, the videotape records could be scored more carefully back at the Center for Research in Children's Television at the Graduate School of Education, Harvard University.

The children to be videotaped were chosen randomly from three different age groups: 3 to 5-year-olds, 6 to 8-year-olds and 9 to 11-year-olds.

Children watched the program with their own age mates in groups of 15. They watched in a special room which was unsupervised and they were told they could do whatever they wished. In the front of the room we had set up two viewing alternatives: the television monitor, and a distractor unit which flashed interesting slides every eight seconds. Thus, children's attention purposely would be distracted from the television screen in several ways: they could watch the distractor unit instead of the television; they could talk with each other; they could get up and move around if they so wished. Out interest was to see, under these conditions, how much attention children paid to the television.

One of the unique aspects of Sesame Street is that each program is composed of 40 to 50 programming sections. Each part concerns iteself with a specific program goal, and can employ a wide variety of special effects. Sections vary in terms of characters involved, overall technique, length, pacing, visual effects, setting, and special devices employed such as music or humor. Some sections are filmed, others are animated. Some are videotaped on the "street" set, others involve the muppets - a particular puppet unique to the program. In all, about 800 sections, involving various combinations of these factors, were shown to the children in Jamaica. By studying how the pattern of attention varied across the different sections, we hope to come to a better understanding of exactly which elements or attributes make a particular section appealing to inexperienced viewers.

This was the overall plan we had for the project, but to bring it into reality required the commitment and ingenuity of many Jamaicans. We were fortunate to have full cooperation and support of the Ministry of Education, the Jamaican Information Service, the Jamaican Broadcasting

Corporation and the Office of the Prime Minister. Many of these organizations offered manpower and supervisory guidance in helping us to execute the project. Field operations were under the competent guidance of a Jamaican graduate student from the Graduate School of Education, Evans Whilby, who coordinated activities in Kingston and the villages. We enjoyed substantial support from school principals and teachers in selected villages, and they helped us to enlist the support of parents and children in the communities.

In October, 1972, with the administrative groundwork properly laid, the equipment and technical experts from Japan arrived to initiate the experiment. The two mobile units proved to be much more remarkable than we had anticipated. The miniature size of the jeep was striking; yet it proved rugged and strong, capable of climbing any mountain road we attempted. By the end of October, with a unique team comprised of Jamaicans, Japanese, and Americans we began making showings in the stationary and mobile sites over a period of six weeks.

The children's reactions to the initial viewings were predictable, but delightful. Their faces during their first half hour of viewing showed a bewildering assortment of expressions, ranging from mystification to surprise, delight, and excitement. Yet these extreme expressions quickly settled into a normal pattern of general interest. Rather than studying expressions, however, our concern was to measure quite exactly the attention patterns as they emerged over time.

Despite initial problems with setting up the equipment, the experiment at the stationary site proceeded quite smoothly over the six weeks of the experiment. At the end of the project it was clear that our intervention, particularly at the stationary site, had whetted such an appetite for television that we felt obligated to leave a viewing capacity at sites where we had done substantial showing. Thus, for example, at the stationary site we left a generator and a television so that children could continue viewing after the experiment was over. Additional equipment and mobile vehicles were given to the Prime Minister's office at the end of the experiment.

Approximately 100 hours of videotapes of the three different age groups were shipped back to the United States for analysis at the Center for Research in Children's Television, Harvard University. There, the exact attention levels of children to each programming part were precisely scored.

3.0 The methodology for studying attention. The procedure for scoring the tapes follows the Children's Television Workshop technique of creating a "distractor graph" for each program. Such a graph shows the attention of a group of children every few seconds as it fluctuates up and down through the entire span of the program. By dividing the distractor graph for a program into sections, it is possible to determine which parts are relatively effective in creating and holding attention. By systematically separating effective sections from the ineffective ones, we can begin to determine which of the various television conventions appear to be associated with high attention for inexperienced viewers.

Our goal was to create a distractor graph for each of 100 videotapes recorded shown in Jamaica. This was a tedious undertaking. Our technique was to stop the videotapes every 10 seconds and, by keeping a stop-action picture on the screen, to score exactly what each child was doing. For an hour's videotape this meant scoring 360 different moments within each program for each of the 15 children, or a total of 5,400 scores for each tape. For our complete complement of tapes this meant generating nearly a half-million scores.

Clearly, the generation of such a large number of individual children's attention scores constituted a nearly unmanageable mass of data. For the analysis described in this report, these half million individual child-moment attention scores were collapsed in the following way. We first created a group attention score for every observation moment in particular bits. This group attention score was constructed by calculating the percentage of children watching the program out of a group of children at any given observation point. For example, an attention rating of 66.6 for a group of 15 children would mean that at the observation moment, 10 children had their eyes on the screen while 5 did not.

These group attention scores were then further collapsed to create overall bit-attention scores. For example, if a bit lasted exactly one minute it would have six 10-second observation moments within it and, therefore, six group attention scores. These six scores would be averaged to derive a total bit-group attention score. The analysis in this report is primarily based upon the bit-group attention score. Since we showed for some groups programs five days a week for six weeks, we have for some groups 30 programs. An average program contains approximately 40 bits so that for some groups we have as many as 1200 bit-group attention scores.

While the collapsing of data into bit-group attention scores admittedly loses some of the finer distinctions within the data, it does make analysis of the data much more manageable. As we shall see in the following section, even the use of the general bit-group attention score produces large numbers of fascinating trends.

4.0 Structure of the report

In sections which follow we report the results of the analysis of attention patterns for the Jamaican children. In the second section we will explore general attention patterns for all age groups combined. Here we will look at basic trends such as attention by viewing week and program qualities. In the third section we shall examine age differences in attention more closely. As a vehicle for this comparison we will use a set of attributes which distinguish bits from one another. These attributes relate to a wide range of qualities of the bit: how sound is used, the use of visual effects, the characters and setting, content, and format of presentation. The attributes are the basis of testing for age-specific differences in attention. A final section summarizes the major trends we have identified in the attention studies, as well as major conclusions from the Jamaican project itself.

Part II: General Attention Patterns

1.0 General attention patterns.

There are two general variables which are most basic in this study: age and viewing week. 'Age' refers to the age of the viewing audience, while 'week' refers to the week during which the program was viewed. There were three age groups in this study: Basic School students, first and second graders, and third and fourth graders. Similarly, there were four weeks of non-repeated viewing. In this initial section we will examine general differences in attention. First, we shall see how attention varied by age groups when combined over all viewing weeks. Then we will explore attention by viewing week for all age groups combined.

1.1 Overall attention by age. Table 1 shows that there are overall significant differences in attention between the three age groups. Basic School students are significantly lower in attention than are older children; however, there is no significant difference in attention between the two older groups.

On the surface, this may seem somewhat surprising since Sesame Street is intended for the youngest age group. The findings would tend to suggest two possible types of interpretations: (1) the program is more appealing to older children and/or (2) older children have a greater capacity to be attentive to a television program. The greater variability in the attention of the Basic School children tends to suggest that at least the latter interpretation may be true. Younger children fluctuate more in attention and may not be able to sustain high levels of attention over long periods of time. This may be especially true in the first weeks of viewing as we shall see in a later section.

1.2 Overall attention by week. The majority of the children in the study viewed television over a six-week period. During the last two weeks, children in Groups II and III repeated shows that they saw earlier. Table 2 summarizes the overall attention scores by the particular week of viewing. There are clearly differences in attention level by week. Initially, attention is high, but it drops during the second week to its lowest point. In the third week it proceeds to build reaching approximately its original level of Week 1 by the fourth week. During the two repeat weeks overall attention is higher than in the initial week.

This curvilinear pattern suggests that two different effects may be operating. The first is a novelty effect. The sheer newness and peculiarity of television seems to be responsible for exceptionally high attention the first week. However, the novelty of television seems rapidly to wear off. By the second week, after only five hours of viewing, attention has already hit its lowest point. This rapid accommodation is interesting. Apparently the child viewers are very adaptable to the new medium of television for it held their extreme attention for only a few days.

The second effect seems to be operating in the gradual growth of attention from its overall low point during the second week. Once the novelty has worn off, it appears that there is a growing capacity to attend to the television again. It is unclear what causes this growth effect. One possibility is that children develop a greater capacity to sit still for an entire hour and pay attention to television. Another equally plausible possibility is that the Jamaican children began to comprehend more about the Sesame Street program as their expectations about its format and the characters became more crystallized. These increasingly firm expectations about the nature of the program could have a positive influence on general attention as the program became more predictable. Whatever its cause, 'growth effects' are observable in most groups' attention patterns.

Between-week comparisons show that despite the initial high level of attention when the 'novelty effect' was likely to be most strong, the viewing of repeat programs during the last two weeks produced substantially higher levels of attention than those obtained during the height of the novelty effect. Children, once they had viewed for several weeks, paid more attention to a program the second time they saw it. This pattern suggests that a capacity to predict what will happen in the program enhances attention. Certainly there is little evidence that the appeal of material declines with the second viewing.

Table 2a shows the overall variation in attention over various weeks broken down by three viewing age groups. Unfortunately as noted earlier, the Basic School children viewed the material for only two weeks. Their attention patterns did not tend to show the intense 'novelty effects' of older groups. Since there was not subsequent viewing for the youngest group, it was impossible to determine whether their attention would show 'growth effects.' First- and second-graders show the curvilinear pattern of attention most strongly of the three viewing groups. Both the 'novelty effects' and 'growth effects' are strongest in this group.

While the oldest group does show a drop in attention after the first week, it is smaller than that of the first- and second-graders. Unlike other groups, from the second week on , the oldest group does not show any appreciable 'growth effects.' Attention seems to stabilize the second week and does not grow over time. This stability in attention appears associated with other variables that will be explored in later sections.

2.0 Differences in attention by general program variables.

Besides varying by age and week of viewing, attention patterns of the children in this sample appear to be linked to general program variables. In this section we will identify some of the attention patterns for all age groups combined in regards to such program attributes as quality of program, type of segment, type of characters, program quartile and duration of segment.

2.1 *Overall differences in attention by quality of program.* The most general aspect of the program which the children could respond to was the overall quality. On the basis of distractorgraph data in the United States the *Sesame Street* research staff identified several types of programs for use in Jamaica. Five 'good' and five 'poor' programs were selected on the basis of extreme attention scores with American subjects. 'Special' programs were identified which made heavy use of special visual effects. Finally, two 'experimental' programs were specially developed which contained the more sophisticated and abstract material that had appeared in *Sesame Street.* Bits were chosen when they employed special visual effects, such as pixillation, matting, chroma-key, etc., which would theoretically require a relatively high degree of media sophistication to comprehend. These bits were edited together to have a general appearance of a regular *Sesame Street* program.

Table 3 shows that there were significant differences in attention to the four types of programs. These differences suggest children are responsive to different types of program quality. To our fascination programs classified as 'good' actually received significantly higher levels of attention than did 'poor' programs. Apparently a rural group of Jamaican children with little or no media experience could distinguish between programs termed 'good' and 'poor' in the United States. It would appear that children of distinctly different cultural, economic, and geographic backgrounds, with substantial differences in media exposure, show broad similarities in attention to program quality.

Somewhat to our amazement, 'experimental' programs containing the most sophisticated visual techniques and abstractions available in Sesame Street received significantly higher attention than did the regular programs ('good' and 'poor' programs combined). Furthermore, the 'experimental' programs received substantially higher attention than the 'good' programs alone. While these results do not indicate whether children comprehended all the materials in the 'experimental' programs, the sophisticated media techniques clearly seem to dramatically influence attention.

2.2 Differences in attention by type of program material. Sesame Street contains numerous types of bits. Some segments are filmed, while others are animated. Some videotaped bits are in a 'limbo' with a blank studio background. Still others involve Muppets, either alone or in interaction with people on the Street. These segments entail different types of locations, characters and reality. To that extent they may stimulate distinct attention patterns. In this study we considered six types of program material: film, animation, scenes shot on the Street without Muppets, Street scenes with Muppets (either Big Bird or Oscar), Muppet segments, and studio pieces videotaped in limbo. Table 4 shows that there are in fact substantial differences in attention to these types of program segments. In terms of mean attention across viewing groups the six categories rank as follows:

(1) film; (2) studio limbo; (3) animation; (4) Street scenes; (5) Street scenes with Muppets; (6) Muppet bits.

These rankings are somewhat surprising, since the Muppets score particularly low. Unlike attention patterns in the United States, bits involving only Muppets are significantly lower in attention than every other type of program material. Even in Street scenes, however, the appeal of Muppets appears to be enhanced when they interact with other live characters. This may give us an initial clue in interpreting the strikingly low attention which Muppets receive.

2.3 Attention differences by character. The lack of general appeal of the Muppets is made all the more peculiar by the fact that particular age groups pay substantial amounts of attention to particular Muppet characters. Table 5 indicates that of the principal Muppet characters, Oscar receives most attention, followed by any Muppets, Cookie Monster, Big Bird, Grover, Kermit, and Bert and Ernie. These patterns suggest that the inattention to the Muppets is not a general phenomenon. Children do distinguish between particular Muppet characters, and those that tend to be most popular in the United States (Big Bird, Cookie Monster, and Oscar) are also more appealing to the Jamaican children. The differences in attention rank do tend to suggest one possible clue to the general lack of appeal of the Muppets in Jamaica. The most popular characters, Big Bird, Cookie, and Oscar, are creatures and not humans. They tend to talk less than other Muppets such as Grover, Bert, and Ernie. Often the dramatic action of the popular characters is more child-like and more visually obvious (e.g., Cookie's stealing of food). Finally, the more popular Muppets tend to interact more with human characters. These patterns suggest that children might be responding to such variables as reality of the character, degree of visual clarity of the Muppet's behavior, and degree of verbality of the Muppet character.

2.4 Attention patterns by other bit characteristics. There are additional differences in attention associated with other fundamental bit qualities. Table 6 shows that there are significant variations in attention to bits within particular quartiles of the program. When all age groups are combined there is a general decline in attention in each successive program quartile. Strongest declines are between the second and third quartiles. This decline is not as strong in other samples used by the Workshop and may well be associated with an inability to watch a full hour of television on the part of the viewer with little media experience. As we shall see in later sections, declining attention by quartile is stronger in some age groups and shows signs of shifting over time as media exposure grows.

Not surprisingly, attention also varies with the duration of particular bits. For all viewing groups combined, attention drops significantly when bits are more than three minutes in duration (see Table 7). This pattern shows interesting parallels to the widely held producer's belief that segments over three minutes cannot sustain attention. Evidence we will consider later suggests that discrimination of bit duration grows over time and becomes an increasingly significant determinant of overall attention.

Other general bit attributes also influence attention for the three viewing groups combined. The presence of music which is incidental but not central to the bit enhances attention significantly in the combined groups (Table 8). Attention patterns are the reverse for general visual effects. Table 9 shows that attention is greatest when visual effects (such as pixillation, chroma-key, matting, computer animation, etc.) are central to the bit.

2.5 Interaction of program attributes. We have seen that certain segment characteristics such as program quality, type of characters, bit position, duration, music and visual effects do influence attention in all viewing groups combined. However, we have examined [illegible] their impact singly. How do these attributes act together? From a statistical point of view, is there interaction between program attributes? Do effect 'A' and effect 'B' combine to produce a third effect 'AB' which is distinct from the original two effects. For example, it is possible that the type of segment (film, animation, street scene, Muppet bit, studio piece, etc.) could interact with position within the program. If this were the case, we might expect one type of material to do better in the beginning of the program while another type might sustain attention better at the end. Table 10 shows a cross-tabulation of average attention scores for various types of program material in particular quartiles of the program. It is clear that while position and type of material are by themselves important variables in determining level of appeal, there is no statistically significant interaction between the two dimensions. That is , there is not substantial variation in appeal of a particular type of material when it appears in a particular quartile of the program.

The attention to bits drops from an average of 84 percent during the first quarter of the program to an average of 71 percent during the last quarter, a decline of 13 percent. Of the particular types of programming material, animation drops least (8 percent) while the Muppets decline the most (17 percent). As noted earlier, the bulk of this decline in attention occurs within the first half of the program; attention remains relatively stable after that point.

Another possible interaction is that between the type of program material and its duration. An example of a significant interplay here might be that particular types of bits would have higher appeal when done in short versions, while other types would have highest attention when produced in a larger format. Table 11 shows the interaction between duration and type of bit. Again, we see that the first-order effects are strongly significant, but that the interaction is mild and not noteworthy. Apparently type of material and duration are attributes that operate independently on attention in this sample.

Despite the lack of interaction of duration and type of bit, there is one pattern worth noting (Table 11). When all bits are considered, the average attention is highest for the bits under one minute, 79.5 percent. As duration of the bit increases, attention generally declines. Bits more than three minutes in duration have an average attention of 71.5 percent. Of the various types of program material, all of them show a decline in attention with increasing duration of the bit, except one: animation. Here, attention patterns are reversed. The shortest bits have the lowest attention (76.9 percent) and the longest bits have the highest attention (83.5 percent). Animation does not capture attention well when it is less than one minute in duration. Of the six types of program material, for the one-minute duration or less, animation ranks fifth; but for any longer period, it receives the highest attention when compared to other types of material. Apparently animation has the peculiar property of increasing appeal with increasing duration.

Other interaction patterns may exist, such as the interplay between bitduration and its position in program. Do bits of a particular duration do differentially better in any particular quartile of the program? Table 12 shows that this interaction is not at all significant. While short bits start with overall higher levels of attention than longer bits, they show a very comparable decline in attention from the beginning to the end of the program. As Table 12 shows, short bits (under one minute) in the first quartile of the program have an overall attention of 89.6 percent and in the fourth quartile 74.2 percent, a decline of approximately 15 percent. Longer bits (over three minutes) in the first quartile of the program have an overall attention of 76.1 percent and in the fourth quartile 57.4 percent, a decline of approximately 19 percent. Thus, both short and long bits show approximately the same absolute drop in attention between the first and last quartiles of the program. As is true with the other basic bit attributes, the interaction is non-significant. Apparently primary attributes such as program quality, type of production, position within the program, and bit duration operate significantly but independently of each other in influencing attention.

3.0 Basic differences by age.

Up to this point we have considered overall attention patterns to the most basic attributes. In this section we will take a closer look at the data. While still considering the more fundamental bit attributes, we will examine how these program qualities affect attention in each age group: Basic School (Group I); first- and second-graders (Group II); and third- and fourth-graders (Group III). In doing this we will be able to break down overall attention patterns and explore how the basic attributes operate differentially in distinct age groups.

3.1 Age and program quality. As we have seen previously, there are substantial differences in attention by both age and quality of program, when each is considered separately. When taken together, as in Table 13, both effects still prove to be highly significant and independent of one another. Futhermore, there is an important interaction between the two dimensions. Children of different ages respond differently to particular types of program. The Basic School children,for example, are most attentive to the 'good' programs, moderately attentive to the 'experimental' programs, and show little differentiation between programs rated as 'poor' and 'special' programs. The first- and second-graders, on the other hand, show very high attention to 'special' and 'experimental' programs, and much lower attention to the 'good' and 'poor' programs. Finally, the third- and fourth-graders show relatively comparable levels of attention to the 'good', 'poor', and 'special' programs, and substantially higher attention to the 'experimental' tapes.

In all three age groups, the lowest attention was paid to the programs rated 'poor,' However, only the older children (first- through fourth-graders) showed high responsiveness to the 'experimental' and 'special' tapes. In both cases, the older groups paid higher attention to the 'experimental' tapes than to the 'good' programs. These patterns suggest that attention to special visual techniques employed in the 'special' and 'experimental' programs tends to increase with age.

3.2 Age and type of program material. Table 14 presents the breakdown of attention by age and type of program material. Apparently, type of material does not interact with age; children of different ages respond similarly to different types of programming material. Despite this fact, there are some trends in the data worth noting. The general gain in attention with age is approximately 8 percent; that is, third- and fourth-graders for all programs paid 8 percent higher attention than the Basic School children. However, gains in attention by age are stronger for a few types of programming. Animation gains substantially more than other types of material with increasing age, a gain of 16 points. Muppets also show differentially higher gains with increasing age of the audience. The bulk of the gains in attention to animation occur between the Basic School group and the first- and second-graders, whereas the gain in attention to Muppets is relatively continuous across age groups. While the overall pattern of changes in attention across age groups is not statistically significant, these trends point to higher responsiveness to animation and Muppets with increasing age. Both types of material involve higher levels of fantasy and abstraction because they entail non-human characters. Thus the patterns here parallel evidence that older children show more attention to more abstract visual material.

3.3 Age and attention by program quartiles. Attention continues to vary significantly across program quartile even when the sample is broken down by age. However, attention by program quartile shows significantly different patterns for particular age groups (Table 15). Basic School children show very high levels of attention to the first and second quarters of the program during which there is an attention decline of only 3.8 percent. However, between the second and third quartiles, there is a substantial drop in attention (11 percent), and an accelerated decline between the third and fourth quartiles (16 percent). Similarly, the first- and second-graders show high and relatively constant levels of attention during the first half of the program. There is a decline of approximately 9 percent between the second and third quartiles, but attention seems to stabilize with only a 3 percent decline between last quartiles. Finally, the oldest group shows a moderate decline between the first and second quartiles of the program, at which point attention tends to stabilize with moderate losses of roughly 2-3% between successive quartiles.

While all groups show substantially similar levels of attention during the first quarter of the program, there are substantial differences in attention during the last half. The youngest children show a marked inability to watch the entire program with high levels of attention. The oldest children, on the other hand, show substantial stability of attention after the first quarter. The attention pattern of the youngest group does differ from children of similar ages with more media exposure whose attention throughout the program tends to oscillate more than to decline steadily. The youngest Jamaican children may not yet have learned the television viewing skill of sitting for an entire hour to watch a static object. Apparently this 'ability' takes more than two weeks to develop.

3.4 Age and duration of bits. As noted earlier, attention varied by the overall duration of the bit. Bits one minute and under received the highest levels of attention while there were substantial declines of attention in bits of over three minutes. The drop in attention with increasing duration of a bit showed basically similar patterns across all age groups (Table 16). Two- to three-minute bits received roughly 4 to 6 percent less attention than shorter bits. On the other hand, segments longer than three minutes showed fairly regular declines of about 11 percent in attention. Thus, for all age groups the most substantial decline in attention occurred between the bits of up to three minutes and those which were longer.

3.5 More complex breakdowns by age. It is possible to simultaneously compare the impact of quartile within the program, duration of the bit, and age of the viewer on the overall level of attention paid to a particular bit. In this comparison each of the major variables was tested to determine if its effect is significant above and beyond the variation explained by other effects. Table 16a shows that in this comparison all three major effects (age, duration of the bit, and position within the program), are independently significant in explaining the variation in attention. Of the various types of second- and third-order interactions among these variables, only one effect was significant. As we have seen in Table 15 this is the interaction between quartile of the program and age. The third-order effect between position within the program, duration of the bit, and age was not significant.

These results summarize only a few of the major bit attributes which could differ across age groups. The data do demonstrate that some of the basic qualities of particular bits (including overall quality, type of program material, position of the bit within the program, and bit duration) are responsible for attention differences in all age groups. Generally these attributes appear to affect attention similarly across age groups. Only one factor, position within the program, appears to operate differently in particular age groups.

4.0 General attention differences by week. The Jamaican children were shown Sesame Street over a period of six weeks. During the first four weeks children viewed a new program each day. In a final period equivalent to roughly one week of viewing, we repeated programs chosen at random from those that had been previously shown. Since the Jamaican children had never before seen television, it is natural to expect their reactions to television and to Sesame Street to shift over time. Not only would we expect to find overall differences in attention by week, but we would expect the response of the children to particular attributes to shift over time as the viewers became more accustomed to television.

4.1 Viewing week and type of program material. As we have noted earlier, there is a general curvilinear attention pattern over the weeks of viewing. Attention generally was highest during the first week, dropped to its lowest point roughly in the second week, and climbed to approximately its original level by the fourth week. In many cases, the attention levels in the periods of repeated programs exceeded levels during the first week. This curvilinear pattern we have broken into represents a 'novelty effect' and a'growth effect.'

While this model is undoubtedly simplistic, it may help shed some light on Table 17 which presents the six major types of bits and their level of attention by viewing week. For all viewing groups combined there is a significant interaction between week of viewing and type of material. Apparently, as time went on attention focused more closely on some types of material and declined for others. Almost all types of programming reach their lowest point of attention during the second week. Thus, for most types, the 'novelty effect' wore off in approximately one week's time. There are, however, some substantial deviations from this pattern. Those types of segments which had the highest level of appeal during the first week, i.e., film material and studio material, showed a more retarded decline in attention. Both reached their lowest point of attention during the third week, and showed relatively small overall drop in attention during this time period (i.e., small'novelty effect'). Animation, while dropping to its lowest point in attention by the second week, showed almost no 'novelty effect,' losing only one percent in attention. The most popular material, film and studio pieces, do show average or strong 'growth effects.' Studio pieces show an average attention growth of 6 percent, while film increased approximately 12 percent.

Other types of programming show very strong 'novelty effects,' during the first week. Street scenes show a sharp decline of 12 percent in attention. Street scenes with Muppets dropped 10 percent while Muppets alone decline precipitously by 14 percent. Street scenes are slow to show 'growth effects,' but they occur strongly during the fourth week and repeat weeks of viewing. Street scenes with Muppets show moderate "growth effects' which stabilize basically after the third week. Attention to the Muppets remains erratic, fluctuating strongly from week to week.

4.2 Viewing week and program quartile. Table 18 shows that there is substantial variation in the attention to particular program quartiles over time. During Week 1 there is a gradual decline in attention to the program, particularly during the second half of the program. During Week 2, this decline during the second half of the program is strongly exaggerated, reaching 14 points between the second and third quarters of the program. During the third week of showing, the decline during the second half of the program is less substantial. By the fifth week attention remains above the 80 percent mark through the third quarter of the program. These results indicate that after the initial novelty of the program has worn off in Week 1, there is a general building of attention in two respects: (1) attention in early parts of the program builds above its original base level in Week 1; and (2) attention remains high deeper into the program.

4.3 Viewing week and duration of bit. Table 19 shows that there is an interaction between the duration of the bit viewed and the week during which children watched the particular bit. This means that the duration of the bit took on a distinctly different significance during particular weeks. During the first week of viewing, the overall attention for bits under one minute in length and for those over three minutes in length were relatively similar, differing only by an average of 5 percent. However, as time went on, children began paying less attention to longer bits, and paid differentially more attention to short bits. By the repeat programs, there was nearly a 20-point difference in attention between short and long pieces. This strongly suggests that the children were initially not sensitive to bit length but gradually began to discriminate bit duration. As these discriminations grew, the children progressively focused their attention. However, the unfolding of attention patterns for short and long bits followed somewhat different courses. For the longer bits, attention dropped to its approximately final point by the second week, 65 percent. The pattern is different for short pieces. While the overall attention did reach its lowest point during the second week, it was only a minor drop from the level during the first week. From then on, attention to the shorter bits continually rose until the end of the experiment. Segments of intermediate length reached the lowest point in attention during the third week when attention began rising until the end of the experiment.

Part III: Differences in Attention by Age

Differences in attention by age groups:

1.0 Introduction.

In analyzing fluctuations in appeal data, the bit is often a convenient unit of analysis. Because it combines a distinct set of production factors, each bit can be considered a unique and special type of stimulus. Each one entails a particular permutation of factors which, theoretically, should strongly influence its overall appeal in attention. The wide range of variation in the nature and content of bits in Sesame Street provides a kind of natural experiment. Numerous characteristics of the bits are mixed in different combinations with each other; a careful analysis of the content in each bit could allow the researcher to understand how various factors in combination with others operate to produce overall attention.

For some time the Workshop has explored the concept that there are particular dimensions or 'attributes' in bits which can explain variations in attention. One methodology for discovering these attributes is inductive. By separating bits with extremely high and extremely low attention, and by systematically comparing them for their differences, it is possible to infer those factors which are responsible for high attention. Theoretically such factors should be present in bits of high attention and absent in those with low. The inductive approach employs content analysis and an 'after-the-fact' use of attention data to develop hypothetical attributes which cause high attention.

While the inductive approach to attribute analysis would have been feasible with the Jamaican data, we have used a different approach. Rather than inferring attributes after the fact from attention data, we developed an *a priori* list of attributes. By comparing the bits, we developed a set of 50 attributes which might predict variations in attention of the Jamaican children. While *a priori* attributes may not be totally inclusive, they have the advantage of not depending on attention data. Since *a priori* definitions are less subject to variations in the bits chosen for analysis, they are potentially more universal than inferred attributes. Also, if the *a priori* attributes produced significant differences we would have, in effect, created and tested a hypothesis. Bits which were defined on an *a priori* basis may be of more immediate utility to producers in understanding in common sense terms which factors affect viewer attention.

It is entirely possible for the *a priori* and the inferred attribute methodologies to produce entirely distinct sets of qualities which predict attention. Certainly the *a priori* attributes can be used to group bits which are at least superficially similar in their structure; a secondary analysis based on inferred attributes might sharpen predictions of variations in attention.

For purposes of discussion, however, we have summarized the *a priori* attributes below. Most of the scoring entailed three to nine categories which represent distinct ways in which a particular attribute might appear on the screen. The attributes were scored for several major domains: curriculum content, characters, format, and techniques that were used. The following attributes were used to analyze the Jamaican data.

I. Content:

A. Curriculum Goal (taken from the Curriculum goal definition of the fourth season). (1)

B. Clarity of Message.

(1) Clarity of visual message (2): the degree to which the bit's message is depicted visually.

(2) Clarity of verbal message (3): the degree to which the bit's message is stated verbally.

(3) Visual noise (4): the proportion of the visual track which is not related to the bit's message.

(4) Verbal noise (5): the proportion of the sound track which is not related to the bit's message.

II. Characters:

A. Familiarity of characters (6): the degree to which characters are familiar and nameable.

B. Type of character (7): the kind of central character (e.g. live, Muppet, animal etc.).

C. Particular live character (8): the exact live character on screen.

D. Particular Muppet character (9): the exact Muppet on screen.

E. Cultural type of character (10): the general cultural background of the character on screen (race included here).

F. Sex of active character (11): the sex of the central character.

G. Age of active character (12): the age of the central character.

H. Strength of affect shown (13): general strength of affect shown by the central characters.

I. Nature of affect shown (14): general type of affect shown by central characters.

III. Format:

A. Format type (15): the degree to which the bit is self-contained or part of a series.

B. Visual medium (16): the medium used to record the bit (film, video tape, animation, etc.)

C. Goal format type (17): the general way in which the goal content is presented.

D. Dominant tone (18): the general mood of the bit (e.g. humorous, conflictual, matter-of-fact, etc.)

E. Humor.

1. Intensity (19): the strength of humor used in the bit.

2. Track location of humor (20): whether humor is located on visual or sound track or both.

3. Mode of humor (21): type of humor used.

F. Duration of bit (22): overall length of the bit.

G. Integration of visual and sound track (23): degree to which the visual and sound tracks are related.

H. Visual perspective (24): consistency of visual perspective.

I. Direction of speech (25): direction of speech of central characters.

IV. Techniques used:

A. General techniques.

1. Pace (26): the general pace of the bit.

2. Large visual movement (27): the amount of visual movement covering large portions of the screen.
3. Visual background (28): the presence of a visual background.
4. Figure-ground contrast (29): the intensity of figure/ground contrasts.
5. Setting (30): the location of the bit setting.
6. Music (31): the centrality of music in the bit.
7. Sound effects (32): the centrality of sound effects in the bit.
8. Visual effects (33): the centrality of visual effects in the bit.

B. Visual techniques.

1. Print (34): the type of print on the screen.
2. Numbers (35): the presence of numbers on the screen.
3. Camera techniques (36): the use of particular visual techniques (e.g. zooms, fades, pixillation,etc.)
4. Natural effects (37): the use of natural visual effects such as rain, snow, night, etc.
5. Electronic Editing (38): the use of electronic editing such as chroma-key etc.
6. Animation type (39): .the type of animation used.

C. Verbal sound track.

1. Number of voices (40): the number of voices on sound tracks.
2. Language (41): the type of language spoken by central characters.
3. Sex of voice (42): the sex of the voice on the sound track.
4. Type of voice (43): the type of voice on the sound track (e.g. adult, child, etc.)

5. Content (44): general content of the sound track.
6. Dialects (45): basic dialect used.

D. Music sound track.

1. Type (46): overall type of music (e.g. instrumental, song, humming, etc.)
2. Continuity (47): the continuity of music during the bit.
3. Kind (48): the general kind of music used in the bit.

E. Sound effects.

1. Centrality (49): centrality of sound effects used in the bit.
2. Location (50): location of sound effect used (e.g., background vs.synchronized with visual track).

Each bit that was shown to the children in Jamaica was scored for each of these dimensions. First we noted the attribute's absence or presence. If present in a particular bit, then each form of the attribute was scored. For example, for attribute #8 'particular live character' we would score exactly which character was on the screen (e.g. Susan, Maria or Gordon etc.). A particular bit might employ a large combination of the attributes listed above. To determine the overall effect of a particular attribute, we could compare the average attention levels for the attribute's subcategories. Again, referring to the particular live character, we could determine if there was substantial variation in attention to the particular characters that appeared on the screen; for example, was there higher attention every time Maria appeared? The analysis which follows is based on a between-categories search for variation in attention within the attributes defined here.

In the analysis which follows, we have taken each age group separately and have determined whether particular attributes significantly explain the variations in the attention of that particular group. Once we have identified which variables seem significant for a particular group, we are able to compare these patterns of significance across the groups to determine which attributes seem to have a strong effect for all age groups. The statistics in the tables which follow, however, have been developed on a subgroup basis. Parallel patterns in variation in attention found in the three viewing groups thus represent three separate tests of the significance of that attribute.

In an analysis of attributes we are faced with a few logical possibilities for the patterns of significance of a particular attribute. These basic logical possibilities for a particular attribute are represented schematically below:

Attribute	Significant in Age Group			Factor Type
	I	II	III	
A				
B	X			Declining
C	X	X		Declining
D	X	X	X	Constant
E		X	X	Emerging
F			X	Emerging

Since we have three different age groups, the first possibility (represented as Attribute 'A') is that the attribute does not significantly explain differences in attention in any group. The second possibility (represented by Attribute 'B') is that the attribute only is significant for the youngest group (Group I). A third possibility is that the attribute "C" is significant for Groups I and II. Other possibilities are that attribute "D" is significant for all groups or Groups I and III, attribute "E" is salient for only Groups II and III, and attribute "F" is significant only for the oldest group.

From such a patterning of scores we might make three general classifications. Since attributes "B" and "C" are only significant for younger children, they tend to decline in importance with age. We shall refer to such types of attributes as declining factors. Attribute "D" however would seem to represent a new type of factor. Here, the attribute appears to be of substantial importance for all groups. It does not appear to undergo major changes with age and thus would appear to be of constant importance. Therefore we will call such attributes constant factors. Attributes "E" and "F," on the other hand, do not appear to be significant for young children, while they are of increased importance for older children. Because these attributes appear to emerge in significance with increased age we shall call them emerging factors.

Clearly, if attributes in our analysis were to arrange themselves as neatly as schematically depicted in the above diagram, they would offer an intriguing basis for development of some hypotheses about how children in the observation groups attend to television. When data are grouped into 'declining,' 'constant,' and 'emerging' factors that influence attention it can become the grounds for theorizing about developmental changes in attentional processes with increased age.

To make sense of the large body of comparisons that we have generated in the Jamaican study, we have organized the attribute data into precisely this form. Figure I includes only those attributes from the total list which have shown significant differences with at least one of the observation

Figure I

Significance of Selected Attributes in Affecting Attention of All Age Groups

Factor				Age Group		
Domain	Attribute Name	Attribute Number	Section Discussed	I Basic School	II 1&2 Graders	III 3&4 Graders
I Sound	Music	47a	2.1	(X)		
	Sound Effects	49	2.2	X		
	Number of Voices	40	2.3	X	(X)	X
	Type of Voice	43	2.4	X	X	(X)
	Voice Content	44	2.5		X	X
	Sex of Voice	42	2.6	X	X	
	Continuity of Music		2.7		X	
	Dialect	45	2.8		(X)	(X)
	Kind of Music	47	2.9			X
II Visual	Figure/Ground Contrast	29	3.1	X		
	Large Movement	27	3.2		X	X
	Setting	30	3.3		(X)	X
	Visual Mode	36a	3.4			X

(X) = $p < .10$

X = $p < .05$

Figure I (cont.)

Significance of Selected Attributes in Affecting Attention of All Age Groups

Factor				Age Group		
Domain	Attribute Name	Attribute Number	Section Discussed	I Basic School	II 1&2 Graders	III 3&4 Graders
III Characters	Particular Muppet	9	4.1	X		
	Age and Type of Character	12	4.2		X	
	Type of Character	7	4.2		(X)	X
	Particular Live Character	8	4.3			(X)
	Kind of Character	7a	4.4			X
IV Content and Integration Visual and Auditory	Curriculum Content	1	5.1		(X)	X
	Visual Noise	4	5.2			(X)
	Visual Clarity	2	5.2			X
	Integration of Visual and Sound	23	5.3			X

(X) = p <.10
X = p <.05

Figure I (cont.)

Significance of Selected Attributes in Affecting Attention of All Age Groups

Factor				Age Group		
				I	II	III
Domain	Attribute Name	Attribute Number	Section Discussed	Basic School	1&2 Graders	3&4 Graders
V Presentation Format	Pace	26	6.1	X	X	X
	Humor	19	6.2		X	(X)
	Location of Humor	20				X
	Affect	14	6.3		(X)	
	Presentation of Goal	17	6.4		X	X
	Directions of Speech	25				X
	Bit Duration	22	6.5			X

(X) = $p < .10$
X = $p < .05$

groups in the study. Of the total list of 50 attributes, 33 did produce such differences. The variables have been arranged into 5 general domains of factors, those relating to sound, visual phenomena, characters, visual and verbal techniques, and presentation formats. Within each domain attributes have been sequenced according to their properties as 'declining,' 'constant,' or 'emerging' factors across age groups. Specifically, within each domain those attributes influencing only the young children have been listed first, those holding constant across all age groups next, while those attributes relating only to older groups are last. The domain groups themselves in turn have been grouped in terms of their age relevance; those showing a preponderance of factors relating to young children are first, while those pertaining primarily to older children have been listed last.

A simple reading of Figure I indicates some clear shifts across age groups.

1. Number of structural factors influencing attention. While younger children showed relatively few numbers of factors influencing their overall attention (10) there appeared to be a progressive increase with age in the number of attributes predicting attention. The oldest group had 22 significant factors, more than twice the number of the youngest group.

2. Shift in sense modality. Not only were younger children focusing on fewer attributes but there appeared to be distinct age differences in the type of attributes which influence attention. The younger children seem more attentive to a 'sound' factor while older children appear more sensitive to visual phenomenon. These differences suggest a shift in age in the

dominant sense modality influencing attention from the auditory to the visual.

3. Perceptual complexity. As we will see in our following discussion younger children appear to attend more to gross, general types of attributes, while older children showed more sensitivity to more differentiated attributes involving finer perceptual distinctions and complexities.

4. Integratedness of different sense modalities. We shall see that the younger children tend to structure their attention around simple, unidimensional sense modalities. For example, they tended to be highly attentive to simple sound or general visual phenomena. Older children, on the contrary, tend to show a sensitivity to techniques which employ the integration of visual and sound phenomena and make higher use of cross-modal reinforcements.

In order to interpret the clear pattern in Figure 1 with greater sensitivity and depth, we will discuss separately each attribute variable in the five domains. At the end of this section we will then return to an overall summary of the change in attention patterns across age groups.

2.0 Attributes relating to sound. There are several attributes in the domain of sound which we shall examine: Music, sound effects, number and type of voice, content and sex of voice, continuity of music, dialect and kind of music. In general, younger children appear to be more sensitive to the first of these factors, while older children attend more to the latter dimensions. We shall explore each attribute separately.

2.1 Music. Younger children attended more strongly when music was central in a bit (Table 26). The youngest children showed a near significant difference in attention to bits where music was central as opposed to supportive. Group II showed somewhat higher attention to central music but the significance of this difference was less. Finally, the oldest group showed no difference whatsoever in attention to bits if music was central or supportive.

2.2 Sound effects. Only younger children (Group I) showed differences in attention to sound effects (Table 27). Surprisingly, however, the youngest children showed higher attention when sound effects were only peripheral or supportive and there was a substantial decline in attention when sound effects were central. When compared to the effects observed with music, it would appear that younger children are selectively more attentive to auditory factors. However, such factors apparently can influence attention in both directions. Music tends to heighten attention in the young while other sound effects apparently can distract or retard attention. As with other attributes, it may be that the presence of sound effects is correlated with some other attribute which is distracting to children. On the surface the strong differences in the direction of significance between these two sound factors is difficult to interpret. What is clear is that basic sound attributes seem to affect attention in the youngest group more than in other groups.

2.3 Number of voices. This attribute shown in Table 28 appears to be of constant significance across age groups. For all age groups 'voices of groups' appear to have high levels of attention; they received 82.0 percent attention for the oldest group, 80.6 percent for the middle group, and 72.5 percent attention for the youngest group. Younger children, on the contrary, appear to be more highly attuned to sound tracks involving a single voice played off against a group of voices. Single voices receive substantially different levels of attention across age groups. The older children appear capable of attending to single voices while the youngest children pay the least attention to single voices. This may indicate that while the younger children are attentive to sound factors, they are simply unable to understand the dialect on the sound track, since age was associated with higher scores on verbal comprehension of other dialects. Dialogue between two characters receives poor levels of attention in all groups. This also tends to suggest that the level of verbal comprehension required to understand dialogue may be missing. Once again we should note that the types of voice on the sound track would undoubtedly be related to other attributes such as the types of characters on the screen. For this reason it is impossible to determine whether attention differences observed here are due solely to the types of voice on the sound track.

2.4 Type of voice. Table 29 shows how the three different viewing groups responded to particular types of voices including: an adult live voice, a child's live voice, adult's animated voice, a child's animated voice, muppets, muppets and adults, muppets and children, and adults and children. Older children paid substantially higher levels of attention to adult voices than did the youngest group. Similarly all groups paid high levels of attention to children's voices. In general live voices, and voices of real characters received higher overall attention than voices of imaginary characters such as animated characters or Muppets.

2.5 Voice content. The voice content attribute measured differences in the use of voices: singing, verbalizing, recitation of numbers and alphabet, spelling, labelling, conversation or other. Table 30 shows that the voice content attribute was significant only for the older two groups.

For them, attention levels did not differ substantially when voices were singing as opposed to reciting. What seemed more important was the actual content of what was being recited, numbers appearing to be of more interest than the alphabet. While there were not overall significant differences for the youngest group, it is interesting to note that singing the alphabet appeared to receive highest attention while saying numbers appeared to rank lowest. Of the other categories within this attribute, labelling appeared to receive higher levels of attention in the older two groups.

2.6 Sex of voice. This attribute had several categories for different possible combination of voices: male, female, male and female, group, a male in a group and a female in a group. Here we have an attribute of declining importance as is shown in Table 31. Groups I and II did show substantial differences by an overall type of voice. Here the male voice alone or the female voice alone received lower levels of attention than the two together or a group voice. This may be due to the fact that a male or female voice alone occurs most often in pieces which are narrated and the person speaking is not seen on the screen. Younger children may pay more attention when the person speaking is actually seen on the screen and the voice is not disembodied from the character speaking. Whatever the cause, older children do not appear to be sensitive to such factors as the sex of the voice in the bit.

2.7 Continuity of music. A more complex type of attribute such as the continuity of music, appears to have ahigher level of impact on older children. As shown in Table 32, this attribute was scored in several categories: music being continuous, incidental at the beginning, incidental at the end and occasional music throughout the bit. Young children did not show significant variation in their attention to bits that employed music in different parts. However, Group II and III were more sensitive to these factors. For example, highest levels of attention were achieved for Group II when music was either continuous or incidental at the beginning of the bit. The later music occurred within the bit, the less it influenced overall attention. Occasional music throughout the bit produced levels of attention approximately comparable to incidental music at the end of the bit. It is tempting to speculate that younger children, while being sensitive to the global attribute of music either being central or peripheral to the bit, lack the discriminatory capacity to have the exact placement or continuity of music strongly structure their attention. However, Group II, which is still sensitive to sound track attributes and music, does show a markedly increased sensitivity to the placement of music within the bit. As sound track sensitivities declined for the older group, these differences tend to lessen as Table 31 shows.

2.8 Dialect. Only the older age groups appear to have attention substantially influenced by the dialect of the key character. Several dialects were scored in this attribute: so-called 'standard' American English, a Black American dialect, a Spanish dialect, Spanish and Black dialects, and Muppets (which were scored here as constituting a particular dialect). Table 33 shows that Groups II and III paid highest levels of attention to Spanish and Black American dialects. Clearly for these children, Spanish appears to have a strong novelty effect. Group I, which did not show overall variation in attention levels for this attribute, did show markedly high attention to Spanish language when it was on the screen. Only the oldest age group showed substantially high attention for the Black American dialect, significantly higher than those bits employing standard American dialects. Once again, it is difficult to interpret whether this represents a sensitivity to linguistic dialect or a simple interest in Black characters.

2.9 Kind of music. It was possible to break down the specific type of music that appeared in a bit into categories such as: rhythmic, melodic, soul, jazz, march, melodramatic and other types of music. Only the oldest group showed substantial sensitivity to these different types of music. March music and soul music received the highest levels of attention while rhythmic music received the lowest. Here again it would appear that the older children are attending to the more complex facets within the domain of music rather than to its simple presence or absence. However, these patterns are based on limited amounts of data in which certain categories are absent at times for particular groups. These differences in attention seem to operate on a completely subliminal basis; they are measurable despite the numerous types of 'noise' in this study including gross collapsing of attention data, measurement errors, and the interplay of various of other attributes which could influence overall attention.

In summary, it appears that the younger children are more sensitive to general sound attributes than are the older children. All groups appear to be sensitive to the number of voices on the screen, seem to be more sensitive to group voices and appear to be less attentive to voices which require comprehension of dialect. All groups show higher levels of attention for live children and adult voices, while the older group shows an increasing attentiveness to adult voices. Older children appear to be more sensitive to the content of voice and complex variables such as particular type of music and its continuity. Thus in domain of sound, we find that simple sound factors appear to structure attention differentially more strongly for younger children while complex distinctions within music and the uses of voice are more important to older groups.

3.0 Attributes relating to visual track. As Figure I suggests, there is also an important shift in attention patterns in the visual domain. Once again, we find that attention of the very young is more strongly related to gross, general visual patterns. In contrast, older children appear to focus on the mode of visual presentation. Shifts in attention to visual attributes can be seen in the following areas.

3.1 Figure/ground contrast. Table 36 shows attention to figure/ground contrasts for the three age groups. For the youngest group this program attribute is significant. Bits in which there is medium figure/ground contrasts attract highest levels of attention. For the youngest group low figure/ground contrast is associated with very low levels of attention. As age increases the importance of the figure/ground contrast diminishes.It produces moderate but non-significant trends for Group II, and no differences at all for the oldest group. In addition, the attribute shows signs of reversing its direction; for the first and second graders, bits with lowest figure/ground contrast get the most attention. These patterns suggest that the youngest children's attention is more affected by general visual patterns than is the older children's. High contrasts appear more appealing to the youngest while lower contrast catches the attention of older children.

3.2 Large movement on screen. All three groups appear to be more attentive when there is large movement on the screen (Table 37). These patterns appear somewhat more pronounced for the two older groups. Older children show increased attention differences between bits with little and substantial amounts of large movement. These trends tend to contradict the broader patterns in the data which suggests that younger children are more attentive to general bit attributes. Large movement may well be associated with other more complex attributes which attract older children's attention, but we are unable to determine this in the present analysis.

3.3 Setting. Older children appear to be more affected by the visual setting of the bits, as Table 38 indicates. With increasing age attention patterns vary more strongly in relationship to the setting. Youngest children show very little sensitivity to setting. Apparently the 'level' at which they attend to television is more general. Only urban exterior settings produce strong attention differences . For the youngest group this pattern may well be explained by a 'novelty effect,' but it is not clear that novelty is the only cause of these differences. Group II shows more substantial attention variation by setting. Interestingly, this group is most attentive to fantasy settings. Still stronger differences are evident in Group III. Here, attention is highest to bits with exterior-country settings.

3.4 Visual mode. A final set of differences in the visual domain is presented in Table 39. Here we have further evidence of visual factors which seem to be of increasing importance with growing age. Young children show little discrimination in attention between segments which are produced on videotape, in animation, or in live-action film. Group II begins to show growing attention differences, while in Group III these differences are significant. In the oldest group, animation is of highest appeal, with film a close second. Interestingly, in the other groups, animation is not top-ranked in attention.

As was true in the sound track, attention to the visual track appears to shift with age. Younger children appear to be more attentive to static visual scenes in which there is moderate to high figure/ground contrast. Older children pay more attention to bits with lower figure/ground contrast and increasing amounts of large movement on the screen. In addition, they appear to be more sensitive to visual 'content' and other subtleties such as visual setting and the mode of visual production. Once again we find older children focusing on a larger number of more complex and differentiated factors. They appear to be attending to programming on a 'deeper' level, one associated more closely with the meaning of the bit.

4.0 Attributes relating to character on the screen. As Figure I suggests there are also shifts in attention patterns by the kinds of characters on the screen. Attention patterns for younger children differ significantly by particular muppet characters. With increasing age, children appear to be more oriented towards live characters and show highest attention to unfamiliar characters.

4.1 Particular muppet character. Table 40 shows that only the Basic School children show significant attention differences by the type of muppet character on the screen. Big Bird received the highest level of attention, while Kermit received the lowest. Muppets on the Street (Big Bird and Oscar) appear to receive higher levels of attention than Muppets in Limbo. With increasing age, variability in attention to particular types of muppets declines. Across all age groups, however, Ernie and Bert receive relatively low levels of attention.

4.2 Age and type of character. Table 41 shows levels of attention to specific types of characters particularly adults, children, and muppets in various combinations. Attention differs by type of character only for Group II. Highest level of attention is received by bits involving children and muppets. Significantly, these bits are frequently performed without a script and are based on the spontaneous reaction of children to the muppets. This type of bit appears to be particularly attractive to the Group II as do bits involving animals, which are also derived from spontaneous live shots. Group II also shows high sensitivity to bits involving adults (adults alone or in combination with children). Attention to muppets and bits involving children as the main characters received the lowest level of attention in this group.

Table 42 summarizes attention by a different set of distinctions among characters. Again, the older age groups appear more sensitive to variations in type of character. Group II shows highest level of attention to live characters and objects. For this group, lowest level of attention was paid to non-muppets. For the older age group, attention was high to bits involving any muppet, animation and live characters. Attention was low for live characters and muppets, abstract characters and objects. The only type of character that shows a continuous trend across age groups are animated characters which display rising levels of attention with increasing age.

4.3 Particular live character. Table 43 shows overall attention patterns to particular live characters in the program. Only for the oldest group did differences among live characters approach significance. This pattern parallels others in which older children pay more attention to adult characters rather than making discrimination between imaginary characters like muppets. Attention to adult characters varies with an overall low for Gordon and Hooper and relative highs for Molly. Live groups of children on the screen receive relatively high levels of attention.

4.4 Kind of character. Table 44 shows differences in attention by kind of character. Again, we see increasing levels of discrimination with increasing age. Attention differences for the youngest groups are completely insignificant, while there is a trend toward significance in Group II and more strongly significant patterns in the older age group. While Table 44 mixes distinctions in the kind of character, a general pattern appears to be that older children pay more attention to unfamiliar characters on the screen, including personalities and other imaginative characters such as Letters, Numbers, Hands, etc.

In general, younger children appear to discriminate more among particular muppet characters, favoring those characters which interact with human beings on the Street. With increasing age children appear to discriminate increasingly by the age of the character on the screen, adults and live actors being favored (particularly where spontaneous action is central). Older children appear to be more discriminating of the degree of familiarity of characters on the screen and to favor unfamiliar characters.

5.0 Attributes relating to content and integration of visual and verbal track. Clearly those attributes relating to the content of the bit on the screen are of interest. The central question here is whether children pay different levels of attention to particular subject matters. An interest in the content of particular bits is closely related to the degree to which the message of the bit is clearly presented. Hence, in this Section we will look not only at the particular content of the bit, but the degree to which its content is judged as being clearly presented both visually and verbally. In addition, we will look at a final attribute having to do with the degree of integration of visual and verbal presentation, which theoretically should affect the clarity of the message being presented.

5.1 Curriculum content. Table 45 shows what affects the attention which children in this sample pay to particular subject areas within the Sesame Street curriculum. For the youngest group attention does not differ by curriculum area. For Group II there are significant differences in attention to particular topics within the curriculum. In this group attention is highest for goals relating to numbers, generating explanations, the natural environment, and geometric forms. Attention is lowest in the area of evaluating explanations and man-made environment. For the oldest group, the differences in attention to particular curriculum topics are increasingly strong. In general, attention levels to particular curriculum areas parallel those of the second group. Attention is high for generating explanations, the natural environment, and number goals. Attention tends to be lowest for geometric forms, social units, the self, and classification.

These results suggest that attention may be highest to those skills currently being mastered by children and drops off substantially for those topics that are either irrelevant or already mastered. Trends across ages, such as a growing level of attention paid to bits relating to generating explanations or declining attention paid to bits relating to social units, suggest differences in the appearance of particular topics given the viewer's developmental stage. However, these trends are difficult to interpret because particular curriculum areas, such as the number goal, tend to have fixed formats that use techniques (such as animation and high pace) which tend to attract older children's attention.

5.2 Visual noise. Table 47 shows attention patterns for different age groups according to the level of visual noise and the degree to which visual information irrelevant to the bit message is presented. While the reliability of coding this visual noise is not high, the data suggest that older children's attention is influenced by visual noise. Youngest children show no significant difference in attention by level of visual noise; they may be less capable of discriminating the meaning of a particular bit and/or more influenced by other attributes of the bit. For the first and second graders, there is a trend toward attention differences according to the level of visual noise. Contrary to expectations, however, these children pay higher levels of attention when visual noise is high. While these differences in attention are not statistically significant, it is intriguing that this middle group of children appears to be attracted by those visual factors entailed by a complicated visual track which is discrepant in some way from the message of the bit. The oldest age group shows even a stronger sensitivity to visual noise. However, for this group, attention to the program is highest when the noise level is low and drops sharply when the noise level becomes high. This suggests that, at least for the oldest age group, the match between the complexity of the visual track and the message of the bit can be discriminated on some levels and affects overall attention patterns.

A distinction related to visual noise is visual clarity. Visual noise refers to the degree to which visual information on the screen is unrelated to the overall message of the bit. On the other hand, visual clarity refers to the extent to which the message of the bit is actually represented visually on the screen. The two factors need not be correlated in a particular bit, nor will they necessarily have similar effects on attention.

Table 48 shows attention by level of visual clarity. Here we find that the youngest age group shows slight, but non-significant differences by degree of visual clarity. For this group, higher levels of attention are paid to those messages which are visually clear. For the oldest age group, these attention differences become strongly significant. Attention is distinctly lower to those bits in which the message is not visually clear.

5.3 Integration of visual and sound track. Age also appears correlated to sensitivity to the integration of visual and sound tracks. Table 49 presents attention levels in which visual and sound tracks are integrated in different ways. Visual and sound tracks can be synchronized when, for example, a person's voice is heard at the moment that he speaks. The two tracks can be matched when, for example, a particular type of sound effect or music symbolizes or represents what is going on in the visual track. Finally, visual and sound tracks can be separated such as those bits in which there is music before there is an object on the screen or an object moving without sound. Table 49 suggests that with increasing age children show increasing sensitivity to the way in which visual and sound tracks are combined. For the oldest children there is a significantly higher level of attention to bits in which sound and visual track are matched. A substantial gain in attention to matched bits appears to have been achieved by some types of bits by the first and second graders as well.

In general, these comparisons show that the older two age groups appear to be more sensitive to the content of the bit on the screen and to the degree of clarity with which that content is presented. With increasing age, children show more highly varying levels of attention to particular curriculum goal areas. Their pattern of attention suggests that they pay most attention to those areas of the curriculum which are developmentally appropriate. In general, older children appear to be more sensitive to visual noise although the way they orient to visual noise appears to change with age. Visual clarity of the bit appears to affect both old and young children, while the integration of the visual and sound track appears to have an impact on the attention of primarily the older age group.

6.0 Attributes relating to the format of presentation. A final domain of attributes relates to the particular style of presentation of a bit. These factors relate to such phenomena as the pace of the bit, the kind and style of humor in it, the types of emotion shown, the particular technique of presenting the goal, and the overall duration of the bit. As such, these factors related to the overall format by which the goal or content of the bit is presented. These attributes do not relate to the specific, more concrete attributes such as those relating to sound, visual track, characters, etc., but more abstract phenomena involved in the overall mode of presentation of material on television.

6.1 Pace. All three age groups show substantial attention differences by different levels of pace, as is shown in Table 50. However, attention to pace differs substantially by age groups. Basic School children show highest level of attention to relatively slow-paced bits, with next highest level of attention to exceptionally fast-paced bits. The older two age groups show very similar patterns; attention is markedly higher when the pace is highest.

6.2 Humor. Humor is present in a number of forms in bits on Sesame Street, and it is interesting to see if attention appears to vary with level and type of humor. Table 51 shows that for the middle group, attention appears to be noticeably higher when humor is absent altogether from the bit. The meaning of this trend is not clear. The attention pattern is reversed for the oldest age group, although the trend does not reach statistical significance. Older age children appear to pay higher levels of attention with increasing centrality of humor in the bit. The patterns may suggest that a high level of development is necessary in a cross-cultural setting for children to 'make sense' of intended 'foreign' humor.

Table 52 shows attention patterns by the location of the humor. Humor was scored as being primarily verbal, primarily visual, or involving both verbal and visual elements. Across age groups, there is declining attention to humor which is primarily verbal and increasing attention to humor which is primarily visual. Only for the oldest age group, however, are the differences between these types of humor statistically significant. The older age group appears to be more highly attentive to visual humor. These trends may reflect the difficulties of the children in fully comprehending the verbal track as well as increasing sophistication at decoding visual forms of humor.

A parallel pattern emerges from Table 53 which shows attention levels to particular modes of humor. Attention patterns do not differ significantly for the youngest two groups. However, the oldest group shows attention differences which approach significance. Attention is highest in bits where a character is made to look silly and in bits where central characters engage in verbal plays on words and verbal nonsense. Attention is lower in bits where characters are incongruous or in which the comprehension of the humor depends on an understanding of the context. It may not be surprising that attention to this type of humor is lowest since it may be most sensitively affected by cultural factors.

6.3 Affect. Bits can be scored for the overall type of affect shown. Only the middle group appears to have attention strongly influenced by the nature of the affect shown on the screen. Bits which have a strong positive affective tone receive the highest level of attention. Lower levels of attention are received for those bits which employ both positive and negative affect in the same sequence.

6.4 Presentation of Goal. The message of bits can be presented in conversation, explanation or story, and may involve such operations as identification, matching and labeling, or sequencing of material shown. Table 54 shows attention levels by the mode of the presentation of goals in bits. Again, we find that the older children seem to have their attention more affected by this type of attribute. First and second graders show the highest level of attention when a goal is presented in a sequence manner. Attention is lowest when a goal is presented in a context of a story. For the oldest age group attention is high when goals are presented in sequence manner and in conversation. Attention appears to be lower when the goal is explained directly. It is interesting to note that the traditional modes of goal presentation entailing explanation or a story received lower levels of attention. More direct presentation of material entailed in conversation, identifying, matching, labeling and sequence material, appears to hold higher levels of attention.

Somewhat surprisingly, the direction of speech of the character presenting the goal also appears related to attention patterns. As shown in Table 55, the attention of older children is more affected by variations in the direction of speech. Highest levels of attention are achieved when the audience is addressed directly, or asked for its participation. These two techniques do not appear to have as powerful affect on attention for younger age groups, despite their more frequent use with younger children.

6.5 Duration of Bit. Earlier Sections have shown that attention varied with duration of the bit involved. Table 56 shows a more sensitive breakdown by the timing of the bit. The two older age groups appear to be more affected by duration of the bit than the Basic School group. For the oldest age group, attention by bit duration differs very significantly by 30-second intervals. For this age group attention appears highest for the shortest bits. For grades one and two, however, attention peaks for those bits between one and two minutes in length. This pattern matches a weak trend in the Basic School data as well. It tends to suggest that regardless of content, attention patterns by duration of the bit shift with age. Older children apparently become more sensitive to shorter bits, while for younger children attention builds in a different type of way and peaks in longer bits. These differences in attention pattern by bit duration may be related to age-related differences in the speed with which the child can orient to and make sense of what is going on in a particular bit.

With the exception of pace which appears important across age groups, the general format of presentation of bits appears to have the strongest effects on the attention of the older age groups. They appear to be influenced by the intensity of humor, the location of humor within the bit, as well as the specific type of humor used. Furthermore, the older two groups show greater sensitivity to the type of affect shown within the bit, and the overall mode of presentation of the bit, including such factors as the direction of speech of the characters on the screen. Finally, the older age groups show more variation in attention by duration of bits. The oldest group is most attentive to the very shortest bits, while the middle age group is more sensitive to bits of moderate duration.

7.0 Summary of attention patterns by age. We have looked at the overall patterns of attention in five general domains: attributes relating to sound, the visual track, characters, the integration of visual and verbal tracks; and the presentation format. It is now time to summarize the general patterns that we have identified in this analysis.

We should begin by reiterating once more the dangers of generalizing too much on the basis of this data. Certainly, in numerous areas, several distinct interpretations of the data might be made and there is really insufficient ground to establish the validity of any particular interpretation. The primary value of this study, rather than developing elaborate interpretations, is to clearly establish the overall trends in attention of this particular set of children with the hope that patterns which are identified here may be found elsewhere and that theory-building may proceed in future studies. Clearly, the attention patterns identified here can only be safely interpreted to be representative of the sample of children from which they came. We make no claims that the attention patterns of this set of children is representative of media-illiterate children, nor of children in the developing nations, nor of children in Jamaica, nor even of the children of the village in which the study took place. If future studies in the developing world show similar patterns of attention to the ones observed here, we may begin to test a set of hypotheses about the development of attentional patterns to television among children with little viewing experience.

As we have noted earlier in this paper, a few major trends appear strongly associated with age. 1) We have noted that younger children appear to have fewer factors which affect their attention level to material. In this study, only 10 attributes appear to substantially influence the attention patterns of the youngest children, while 22 attributes produced attention differences for the oldest group. Thus, with increasing age, there appears to be a growing number of attribute factors which influence overall attention patterns.

2) There is a general shift in the sense modality which affects attention patterns across age groups. The youngest children, as shown in Figure II, are very sensitive to simple sound patterns, and show attention differences with many of the simple sound factors. Older children appear to be more affected by more complex sound factors, as well as visual attributes. In addition, older children appear more responsive to the complex integration of visual and verbal tracks.

3) Complexity of perceptual discrimination appears to shift with

increasing age. Younger children appear to be more attentive to gross simple types of attributes while older children appear to be influenced by attributes which are more complex and involve finer perceptual distinction.

4) Older children appear to be more sensitive to those attributes which involve an integration of different sense modalities. For example, older children show attention shifts when sound track symbolically matches the meaning of the visual track.

5) There is greater evidence that the older children are more affected in their attention by specific content of bits; younger children tend to pay attention in a more global way to all content areas within the program.

These patterns tend to suggest that the reality of television and the nature of the television experience probably differed for the three age groups in the study. For the youngest group, in which sensitivity to sound is strong, television is probably experienced more like a 'radio with a picture'. There would appear to be less finely tuned comprehension of content of the program and to the nuance of character and styles of presentation. The younger child appears to be more globally focused on the television and more generally attentive regardless of content. For the oldest group, on the other hand, the experience of watching television would appear to be more complex. The older child is more sensitive to the overall meaning of the bits, is more influenced by the style with which that meaning is presented to him, and is more aware of nuances in the characters which present information and ideas. The older child seems to make higher order connections between the sound and visual track rather than experiencing them as somewhat independent phenomena. The older child has his attention less affected by simple sound factors and to the visual presentation per se, especially visual clarity and visual noise. For the older child, television appears to be a more visual medium which presents more complex messages in a variety of formats.

To illustrate the differences in nuance with which children in this study appear to attend to Sesame Street, we have constructed a Figure III which summarizes some of the trends described in this Section. This Table summarizes many of the patterns noted in this Section on age differences, and suggests the different kinds of production approaches which might maximize attention for the particular age groups in this study. We should stress once again that these trends may not bear any significance for groups except for those in this study. Despite this restriction, it is fascinating to speculate on the basis of this Table the changes in production which might maximize attention for the three different age groups in the study. It suggests shifts in production techniques, nuance and emphasis which would tend to change the flavor, style, pace and direction of the program. While this Table simply summarizes those distinctions made earlier in this Section, it may be of interest to those producers trying to think about the reshaping of Sesame Street for use in developing nations.

Figure II

General Summary of Attention by Age Groups

Attribute	Group I	Group II	Group III
Sound Factors			
2.1 Music	Music should be central in the bit (26)	Music should be central in the bit (26)	-
2.2 Sound Effects	Peripheral sound effects (27)	-	-
2.3 Number of Voices	Single and group voices should be used (28)	Group voices should be used (28)	Group voice or single voice (28)
2.4 Type of Voice	Children's voices should be used frequently (29)	Children's voices should be used (29)	Children and/or adult voices should be used (29)
2.6 Sex of Voice	Use male and female voices together (31)	Male and female voice together or group voice	(Sex of voice is not important)
2.7 Continuity of Music	-	Continuous or incidental at the beginning	Continuous or incidental at the beginning
2.8 Dialect	-	Dialect seems to have a significant effect on attention	Dialect has a significant effect on attention
2.9 Music	-	-	Kind of music affects overall attention
Visual Factors			
3.1 Figure/ground	Attention highest with moderate figure/ground contrasts (36)		
3.2 Large Movement	Large movement enhances attention	Large movement enhances attention	Large movement enhances attention
3.3 Setting		Setting significant; preference for out of doors and fantasy, limbo (38)	Setting significant; preference for out of doors and fantasy, limbo (38)

Figure II (cont.)

General Summary of Attention by Age Groups

Attribute	Group I	Group II	Group III
3.4 Visual Mode		(Preference for film)	Preference for animation and film (39)
Characters	.Generally preference for live characters rather than imaginary		Attentive to muppets
4.1 Particular Muppet	.Muppets receive higher attention if -they are in short bits -they are in beginning of program -they are accompanied by music -they interact with live persons		
	.Any muppets receive relatively high attention (novelty effect) (40)	.Moderate differentiation between muppets (40)	.Relatively low differentiation between muppet characters (40)
	.Favorite muppets (40) Big Bird Oscar Any muppets	.Favorite muppets (40) -Grover -Oscar -Cookie	.Favorite muppets (40) -Cookie
4.2 Age of central character	.Age is not a significant factor in central character	.Age of central character is important -interest in children with muppets -interest in animals	.Age not significant -interest in children -interest in animals

Figure II (cont.)

General Summary of Attention by Age Groups

Attribute	Group I	Group II	Group III
4.2 Type of character	.Type of character is salient .Preference for live character .Muppets are enhanced when with a live character .Muppets, objects and abstractions (lines and dots) of relatively little interest (41)	.Type of character is significant .preference for objects live characters and animals .little taste for muppets (although they too are enhanced by live persons) .any muppet > regular muppets (41)	.Type of character is significant -greatest attentiveness to character differences .preference for -any muppet } more fantasy oriented -animation } -live characters (41)
4.4 Kind of character	.preference for letter and number characters (42)	.preference for letter and number characters (42)	.preference for letter and number characters (42) .tendency to prefer novel, unknown characters (42)
4.3 Particular live character		.tendency to pay higher attention to different racial or cultural group	.live character is more salient -prefers Molly, David, Tom, and children (43)
Content			
5.1 Curriculum	Preferences: .Natural environment .Social units .Number goals .Social interactions .Relational concepts .Self	Preferences: .Number goals .Generating explanations .Natural environment .Perceptual discrimination .Social interactions .Pre-reading goals	Preferences: .Generating explanations .Natural environment .Number goals .Pre-reading goals .Relational concepts .Evaluating explanations

Figure II (cont.)

General Summary of Attention by Age Groups

Attribute	Group I	Group II	Group III
5.1 Curriculum	Emphasis on: .Child and His World .Symbolic representation (45)	.Emphasis on: .Symbolic representation .Reasoning and problem solving (Child and his World) (45)	.Emphasis on: .Reasoning and problem solving .Symbolic representation .Cognitive organization (45)
6.3 Affect	.More attentive to negative affect than positive affect (46)	.Strong positive or negative affective tone enhances attention (46)	.Affective tone not salient (46)
5.2 Visual noise	.Visual noise or clarity not really a salient factor (47,48)	.Attention tends to focus on high visual noise (47,48)	.Attention significantly higher with low visual noise .Attention higher when visual clarity of message is high (47,48)
5.3 Integration of Sight and Sound	-	.(tends toward high attention when sound matched to sight) (49)	.Significantly higher attention with sound matched with visual
Format of Presentation			
6.1 Pace	.Pace should be slow for highest attention (50)	.Fast pace enhances attention (50)	.Fast pace enhances attention (50)
6.2 Humor	-	.Attention highest when humor is absent (51)	.Strong humor tends to increase attention (51) .Higher attention to visual humor (52)

Figure II (cont.)

General Summary of Attention by Age Groups

Attribute	Group I	Group II	Group III
6.2 Humor	-	.Preference for (53) -looking silly -nonsense-verbal	.Preference for (53) -incongruity -slapstick -context
6.4 Presentation mode		.Presentation preference: -sequence -identification, label, matching (active modes) (54)	.Presentation preference: -sequence -conversation (active modes) (54)
6.4 Direction of speech		.Higher attention to narration (55)	.Higher attention when audience addressed directly or asked to participate (55)

Part IV: Conclusions

We can learn a number of lessons from the Jamaican study, many of which have been detailed in this paper. However, we have already pointed out the dangers of generalizing findings in this study to other populations outside Jamaica. What is needed is studies similar to this one, conducted in other remote areas which may either confirm or deny the trends outlined here. The patterns we have identified in the attention of Jamaican children to Sesame Street might serve as the basis for these future studies. Therefore, we report these general conclusions here, not to claim their general validity for populations in other parts of the world or other parts of Jamaica but rather to facilitate their study in other remote areas.

The Jamaican project has shown that the technology for the extension of educational television to remote areas is at hand. The viability of such equipment was demonstrated in several broad ways in our efforts. Pictures were successfully and reliably brought by mobile vehicle to remote villages. The scores of hours of attention of children to television was successfully recorded with this equipment in the villages and became the basis for the analysis presented in this paper. Finally, the mobility of the equipment was established by the ability of the mobile unit to reach remarkably remote mountainous areas within Jamaica. In all, the Sony-Suzuki equipment system proved a very effective system for reaching remote areas with a quality television image and for systematically recording video data which could be analyzed at length in a laboratory setting.

Another general conclusion is that the mobile television unit appears to appeal to both children and adults in remote villages. Everywhere the mobile video unit traveled in Jamaica, its reception was warm and enthusiastic. Adults in the village where the study took place showed a keen interest in the educational possibilities of the mobile unit. Both children and adults were delighted by the appearance of television in their villages, fascinated to watch the mobile programs, and anxious for the vehicles to return. While these observations are impressionistic, any visitor who traveled with the mobile units could not fail to be impressed by the excitement caused by the arrival of a mobile television unit.

Besides these general conclusions there are a number of more specific ones which are based on the data in the attention studies.

1. Overall attention levels of children who had not previously viewed television appear quite high and generally comparable to the attention levels of more "experienced" viewers in the United States. Average attention figures of the Jamaican children viewing Sesame Street are comparable to attention figures derived by the Children's Television Workshop for 3 to 5-year-old populations in the United States (generally ranging from 65 to 95%). While attention levels were high in the initial hours of viewing, probably due to the initial novelty of the video medium, high levels of attention did not appear to be simply an artifact of the initial novelty of the medium since attention in later weeks of viewing usually exceeded initial attention levels.

2. Programs which have high levels of appeal in the United States appear to have high levels of appeal with a population that has never before viewed television. Programs which receive high levels of attention in the United States received significantly high levels of attention among Jamaican children; programs with poor appeal in America received low attention in Jamaica. Apparently, a "good program" can receive high attention in different cultural groups and in viewing populations with different levels of television viewing experience.

3. Adaptation to the medium of television appears to take place at a rapid pace. While the exact meaning of this adaptation is hard to ascertain

all groups show shifting attention patterns over time. All groups show high attention in the first week, which then recedes after five hours of viewing and finally grows to exceed initial attention levels. In addition, young children show rapid shifts in the ability to attend longer to a television program. These shifts in attention occur within 20 to 30 hours of exposure to the medium. From this study we cannot determine whether the shift in attention pattern continues beyond the point of six weeks of viewing, nor at what point in time attention patterns reach a point of stabilization for each viewing age group. The data do suggest that such shifts may occur within a few hours of exposure to the medium. Whether such attention patterns shift in the direction of more experienced viewers in other cultures is an interesting question which might be explored in future studies.

4. Certain segments of Sesame Street which have high appeal in the United States do not seem to hold the attention of the Jamaican children in this study. Specifically, muppet bits usually show low levels of attention in the Jamaican sample. It is not clear whether these effects are due to linguistic factors, such as the inability to comprehend muppet-style English, whether they are the products of a different type of fantasy life for the child in a remote area which makes characters like muppets more difficult to understand, or whether they are due to other factors. Within the Jamaican sample, there generally appears a preference for bits which involve live characters and natural settings more closely resembling the world which surrounds the Jamaican children.

5. Contrary to our expectation, special media effects which employ the most complicated of television conventions receive high levels of attention. This may be due to the novelty of such visual effects for the children in the sample. However, the appeal of these types of techniques does not appear to decline substantially over the six-week viewing period.

Paralleling the high attention received by special television effects is the high attention paid to animation. As with children in the United States animation appears to grasp and hold a Jamaican child's attention in a powerful way.

6. A great many attributes of program bits substantially influence the attention of the Jamaican children. Nearly three dozen such significant attributes were identified in this study. The effect of bit attributes appears to vary considerably with age, allowing us a glimpse at some developmental differences in the way in which television is perceived. With increasing age, children appear capable of being attentive simultaneously to a larger number of bit attributes. Older children paid more attention to visual attributes and were more attentive to attributes which involve finer levels of perceptual discrimination. Finally, older children show a greater ability to be attentive to attributes which involve an integration of different sense modalities, particularly visual and auditory. If these patterns are borne out in future studies, they may suggest ways to produce television which will appeal more effectively to children of different ages.

Other outcomes. The Jamaican study raises some important questions about the cross-cultural adaptation of programs like Sesame Street for populations with little viewing experience. In the Jamaican sample the youngest age group did not show highest levels of attention to rapid pace, did not initially attend to the whole program with high levels of attention, did not respond attentively to certain muppet characters who are popular in the United States and attended to certain parts of the curriculum distinctively different from that of older children. While these patterns may have shifted with more extensive viewing, they do raise the important question of whether attention patterns of less experienced viewers may be distinct and may require distinct production styles. The trends in the Jamaican data might be taken into account in studying the appeal of Sesame Street and its adaptation in developing nations.

Ironically, the information about attention to certain a priori attributes described in this paper is now more detailed for the Jamaican sample than it is for American samples. There is now a need to develop a comparable data base in the United States which would offer some grounds for more specific comparisons in attention patterns between Jamaican children and an American sample. The reason that such a comparable data base does not exist in the United States is that the a priori attribute scoring system was developed specifically for use in the Jamaican study and has not been currently applied in an American sample. While comparisons between the Jamaican sample and an American sample would be subject to hopeless problems of interpretation, it would be of substantial interest to determine the degree of similarity in the attention patterns of the two samples.

The Jamaican experience has demonstrated the viability of using videotapes of viewers in the field as the basis for subsequent attention scoring. This approach makes it possible to develop attention measures /in remote areas and with large groups of viewers rather than individual children. The laboratory scoring of videotapes, though tedious, is viable. It permits low loss of data given short working periods in the field.

The a priori approach to the definition and scoring of attributes also appears to offer a fruitful approach to the analysis of attention scores. Previous studies have relied primarily on the definition of attributes which has been empirically derived through the comparison of bits receiving high and low levels of attention. The a priori approach in which attributes are initially defined on a theoretical basis may produce significant differences which may be especially amenable to systematic theory building. While there are admitted problems in developing high levels of reliability in the scoring of certain a priori attributes, the technique does seem worth pursuing. An area of particular interest is how the a priori attributes cluster into larger groupings of program attributes. While we have not attempted an analysis of this kind here, the data from the Jamaican project could be used to develop such a factor analysis.

The technique of attribute analysis has allowed us to get a deeper insight into how attention to television may shift in children of different ages. The data strongly suggest that it is possible to empirically build a developmental theory of television attention which might become a valuable basis for more effective age-specific programming.

Finally, the findings of this study could serve as a set of hypotheses about attention patterns of children with low levels of media exposure in remote areas in the world. If future studies conducted in rural areas of other countries confirm some of the patterns identified in the Jamaican study, it might be possible to begin to build a theory of attention patterns which relates to low levels of media literacy. Such studies, combined with age-specific attention patterns, could become an extremely useful guide to the adaptation of video materials for educational uses in remote areas. Certainly there is a growing need for the development of such knowledge and theory, since Sesame Street and other educational programs for children are being viewed in scores of countries around the world.

The Jamaican project itself points the way to a promising future for mobile television in remote areas. The project in Jamaica has shown that Sony videocassette equipment works in remote areas under punishing climatic conditions and that the technology for moving video equipment effectively and reliably to remote areas exists in such compact forms as the Suzuki vehicle.

Furthermore, the field experience has demonstrated the strong positive appeal which mobile television appears to have for both the children and adults in remote villages. The distractor studies have shown that the attention patterns of children who have never before viewed television is high and comparable in overall intensity to attention levels of more media-literate children. Other CTW research has shown that high levels of attention are a powerful first step towards effective learning through television. Finally the distractor studies have given us new insight into the attention patterns of children in remote rural areas and might in the future be useful in the cross-cultural adaptation of television programs for countries in the developing world. By demonstrating the viability of the equipment, the popularity of television in remote areas, attentiveness of inexperienced viewers to the medium, their rapid rate of adaptation while viewing, and in identifying ways which might make television increasingly appealing to children in remote areas, the Jamaican project has taken useful initial steps in the extension of educational television to areas currently beyond the reach of television.

Table 1

Overall Attention by Age Group

Group	Mean Percent Attention	SD	N	Variance
Overall	77.271	20.615	1844	424.919
Group I (Basic School)	71.100	22.183	289	492.074
Group II (1st & 2nd Grade)	78.304	20.501	698	420.278
Group III (3rd & 4th Grade)	78.510	19.769	857	390.810

	Mean Square	DF	F-Test	$p <$
Among Groups	6090.555	2	15.061	Under .001
Within Groups	404.405	1841		

T-Test of Group Differences

	Difference	SE	DF	T-Test	$p <$
Group I vs. Group II	-7.203	1.471	985	-4.897	Under .001
Group I vs. Group III	-7.410	1.389	1144	-5.334	Under .001
Group II vs. Group III	-0.206	1.026	1554	-0.201	Over .500

Table 2

Variation in Attention by Week of Viewing

(All Ages Combined)

	Mean Percent Attention	SD	N	Variance
Overall	77.396	20.275	1652	411.089
Week One	77.828	17.872	314	319.397
Week Two	73.645	23.115	262	534.311
Week Three	75.182	20.433	346	417.492
Week Four	77.375	20.618	384	425.116
Repeat (Week 5&6)	82.084	18.475	346	341.323

	Mean Square	DF	F-Test	p<
Among Groups	3259.825	4	8.061	Under .001
Within Groups	404.417	1647		

T-Tests of Differences Between Weeks

	Difference	SE	DF	T-Test	p<
Week 1 vs. Week 2	4.183	1.712	574	2.443	.015
Week 1 vs. Week 3	2.646	1.503	658	1.760	.079
Week 1 vs. Week 4	0.453	1.481	696	0.306	Over .500
Week 1 vs. Week 5	-4.256	1.420	658	-2.997	.003

Table 2a

Overall Attention By Week of Viewing For Different Age Groups

	Group I (Basic School)			Group II (Grades 1 & 2)			Group III (Grades 3 & 4)		
Week of Viewing	Mean Percent Attention	SD	N	Mean Percent Attention	SD	N	Mean Percent Attention	SD	N
Overall	71.005	23.580	213	76.177	21.410	538	77.313	18.818	627
Week One	70.882	23.961	144	76.100	18.403	130	79.201	17.337	189
Week Two	71.261	22.761	69	69.328	26.687	125	76.519	18.510	104
Week Three	--	--	--	73.673	21.708	153	76.246	19.613	195
Week Four	--	--	--	85.785	13.198	130	76.835	19.635	139

Mean Square	DF	Mean Square	DF	Mean Square	DF
6.605	1	6274.316	3	330.597	3
561.240	211	426.578	534	354.796	623
F-Test	**p<**	**F-Test**	**p<**	**F-Test**	**p<**
0.012	Over .500	14.708	Under .001	0.932	.425

Table 3

Overall Attention by Type of Program

(All Ages Combined)

Type of Program	Mean Percent Attention	SD	N	Variance
Overall	77.613	20.265	1681	410.659
'Good'	77.824	19.863	938	394.530
'Bad'	73.475	21.146	299	447.164
Special	76.844	22.562	224	509.066
Experimental	83.077	16.606	220	275.761

	Mean Square	DF	F-Test	$p <$
Among Groups	3947.296	3	9.757	Under .001
Within Groups	404.573	1677		

T-Test Comparisons Between Types of Programs

	Difference	SE	DF	T-Test	$p <$
'Good' vs. 'Bad'	4.349	1.341	1235	3.242	.002
'Good' vs. Special	0.940	1.519	1160	0.619	Over .500
'Good' vs. Experimental	-5.253	1.446	1156	-3.633	Under .001

Comparison of 'Experimental' and 'Regular' Programs

	Mean Percent Attention	SD	N	Variance
Overall	77.805	20.116	1761	404.669
'Experimental' ('Exp.' & Special Combined)	83.077	16.606	220	275.761
'Regular' ('Good' & 'Bad' Combined)	77.052	20.458	1541	418.538

	Difference	SE	DF	T-Test	$p <$
'Experimental' vs. 'Regular'	6.025	1.444	1759	4.174	Under .001

Table 4

Overall Attention by Type of Program Segment

(All Ages Combined)

Type of Segment	Mean	SD	N	Variance
Overall	77.561	19.461	1437	378.714
Film	81.704	18.093	470	327.369
Animation	79.613	19.129	222	365.921
Street	75.674	17.360	138	301.363
Street: Muppets	72.899	18.092	158	327.330
Muppets	70.588	20.903	272	438.051
Studio	80.333	19.765	177	390.648

	Mean Square	DF	F-Test	$p <$
Among Groups	5501.711	5	15.237	Under .001
Within Groups	361.075	1431		

Comparison of Muppet Segments with Other Types of Segments

	Difference	SE	DF	T-Test	$p <$
Muppets vs. Film	-11.116	1.463	740	-7.596	Under .001
Muppets vs. Animation	- 9.024	1.825	492	-4.944	Under .001
Muppets vs. Street	- 5.086	2.074	408	-2.452	.015
Muppets vs. Street: Muppets	- 2.311	1.999	428	-1.156	.249
Muppets vs. Studio	- 9.745	1.982	447	-4.917	Under .001

Table 5

Overall Attention by Principal Character in Bit

(All Ages Combined)

Principal Character	Mean	SD	N	Variance
Overall	71.374	20.134	398	405.359
Big Bird	71.267	19.335	86	373.846
Oscar	77.116	14.533	43	211.218
Ernie	64.024	21.248	83	451.492
Kermit	65.414	24.158	29	583.620
Cookie Monster	75.238	21.609	21	466.943
Grover	70.135	20.247	37	409.953
Any Muppet	76.632	17.560	95	308.336
Other Muppet	74.000	19.222	4	369.500

	Mean Square	DF	F-Test	$p <$
Among Groups	1422.278	7	3.664	Under .001
Within Groups	388.144	390		

Table 6

Overall Attention by Program Quartile

(All Ages Combined)

Program Quartile	Mean Percent Attention	SD	N	Variance
Program Mean	77.483	20.308	1827	412.417
First Quartile	84.867	16.425	415	269.783
Second Quartile	81.244	18.709	422	350.044
Third Quartile	74.569	20.582	427	423.602
Fourth Quartile	71.430	21.493	563	461.944

	Mean Square	DF	F-Test	$p <$
Among Groups	16928.414	3	44.010	Under .001
Within Groups	384.648	1823		

Comparison of Attention Between Selected Quartiles

Quartiles Compared	Difference	SE	DF	T-Test	$p <$
Fourth vs. First	-13.438	1.263	976	-10.638	Under .001
Fourth vs. Second	- 9.814	1.311	983	- 7.484	Under .001
Fourth vs. Third	- 3.139	1.356	988	- 2.316	.021

Table 7

Overall Attention by Duration of Program Bit

(All Ages Combined)

Duration of Bit	Mean	SD	N	Variance
Overall	76.923	20.738	1711	430.076
1 Minute or Less	80.092	22.301	699	497.323
2 to 3 Minutes	76.308	18.419	850	339.276
More Than 3 Minutes	66.475	21.492	162	461.886

	Mean Square	DF	F-Test	$p <$
Among Groups	12508.160	2	30.055	Under .001
Within Groups	416.182	1708		

Comparison of Attention to Bits of Differing Duration

	Difference	SE	DF	T-Test	$p <$
$\leq$ 1 Min. vs. 2-3 Mins.	3.783	1.035	1547	3.654	Under .001
$\leq$ 1 Min. vs. $>$ 3 Mins.	13.616	1.934	859	7.041	Under .001
2-3 Mins. vs. $>$ 3 Mins.	9.833	1.626	1010	6.048	Under .001

Table 8

Overall Attention by Centrality of Music

(All Ages Combined)

Centrality of Music	Mean	SD	N	Variance
Overall	76.350	20.374	545	415.104
No Music	72.695	21.368	272	456.579
Some Music	81.667	18.395	90	338.376
Music Central	79.169	18.694	183	349.483

	Mean Square	DF	F-Test	$p <$
Among Groups	3815.414	2	9.460	Under .001
Within Groups	403.319	542		

Comparison of Bits with Different Use of Music

	Difference	SE	DF	T-Test	$p <$
No Music vs. Some Music	-8.972	2.520	360	-3.560	Under .001
No Music vs. Music Central	-6.475	1.948	453	-3.323	Under .001
Some Music vs. Music Central	2.497	2.403	271	1.039	.300

Table 9

Overall Attention by Centrality of Visual Effects

(All Ages Combined)

Centrality of Visual Effects	Mean	SD	N	Variance
Overall	76.350	20.374	545	415.095
No Visual Effects	75.375	20.390	419	415.736
Some Visual Effects	72.133	22.050	30	486.181
Visual Effects Central	81.927	18.689	96	349.274

	Mean Square	DF	F-Test	$p <$
Among Groups	1958.327	2	4.774	.009
Within Groups	410.165	542		

Comparison of Bits with Different Use of Visual Effects

	Difference	SE	DF	T-Test	$p <$
None vs. Some	3.241	3.884	447	0.835	.405
None vs. Central	-6.552	2.277	513	-2.878	.005
Some vs. Central	-9.794	4.120	124	-2.377	.019

Table 10

Overall Attention by Type of Program Segment and Program Quartile

(All Ages Combined)

Program Quartile		Film	Animation	Street	Street: Muppets	Muppets	Studio	Row Marginals
		Type of Program Segment						
First	Mean	88.043	85.316	81.469	78.667	81.609	89.500	84.101
	SD	15.620	19.997	19.761	12.833	14.552	10.703	
	N	138	38	32	48	46	22	
Second	Mean	84.990	84.329	78.537	73.774	74.667	86.450	80.458
	SD	13.920	18.432	16.530	15.435	16.717	17.234	
	N	102	73	41	31	54	40	
Third	Mean	79.431	70.783	70.906	74.667	68.043	77.633	73.577
	SD	18.700	19.727	16.967	17.220	22.534	20.308	
	N	102	46	32	21	92	60	
Fourth	Mean	73.992	77.231	71.121	66.877	64.425	75.164	71.468
	SD	20.085	16.607	14.583	22.015	22.072	21.761	
	N	127	65	33	57	80	55	
Column Marginals	Mean	81.614	79.414	75.508	73.496	72.186	82.187	77.401

Source of Variation	Sum of Squares	DF	Mean Square	F-Test	p<	Percent of Total Sum of Squares
Program Quartile	29022.188	3	9674.063	28.845	Under 0.001	5.54
Type of Segment	16873.156	5	3374.631	10.062	Under 0.001	3.22
Quartile x Type of Seg.	4683.453	15	312.230	0.931	Over 0.500	0.89
* Unit	473220.250	1411	335.379	Not Tested		90.34
Total	523799.000	1434	365.271			100.00

An asterisk (*) marks the effect used in testing the preceding effects.

Table 11

Overall Attention by Duration of Bit and Type of Segment

Type of Program Segment			≤1 Minute 1	2-3 Minutes 2	>3 Minutes 3	Row Marginals
Film	1	Mean	82.600	79.826	79.111	80.512
		SD	19.151	17.364	13.625	
		N	260	184	18	
Animation	2	Mean	76.921	81.571	83.500	80.664
		SD	21.453	17.485	3.536	
		N	126	77	2	
Street	3	Mean	82.211	76.271	69.222	75.901
		SD	15.248	16.460	21.493	
		N	19	96	18	
Street: M	4	Mean	73.931	73.206	67.667	71.601
		SD	23.232	16.440	19.571	
		N	29	102	21	
Muppets	5	Mean	79.396	68.732	62.527	70.219
		SD	21.639	19.543	21.565	
		N	53	157	55	
Studio	6	Mean	82.400	80.532	67.286	76.739
		SD	21.697	17.853	17.576	
		N	70	79	21	
Column Marginals		Mean	79.576	76.690	71.552	75.939

Source of Variation	Sum of Squares	DF	Mean Square	F-Test	p<	Percent of Total Sum of Squares
Type of Segment	5636.082	5	1127.216	3.121	0.009	1.11
Duration of Bit	3902.837	2	1951.419	5.402	0.005	0.77
Type x Duration	4348.465	10	434.846	1.204	0.284	C.86
* Unit	494505.250	1369	361.216	Not Tested		97.27
Total	508392.563	1386	366.805			100.00

Asterisk (*) marks the effect used in testing the preceding effects

Table 12

Overall Attention by Bit Duration and Program Quartile

(All Ages Combined)

Program Quartile		≤1 Minute	2-3 Minutes	>3-Minute	Row Marginal
First	Mean	89.607	82.593	76.171	82.790
	SD	17.398	13.536	16.624	
	N	178	167	41	
Second	Mean	83.424	80.291	72.219	78.645
	SD	20.251	15.845	20.393	
	N	158	206	32	
Third	Mean	75.385	75.278	62.654	71.105
	SD	22.343	19.149	19.731	
	N	130	205	52	
Fourth	Mean	74.225	70.080	57.486	67.263
	SD	22.304	20.349	23.386	
	N	222	264	35	
Column Marginals	Mean	80.660	77.060	67.132	74.951

Source of Variation	Sum of Squares	DF	Mean Square	F-Test	p <	Percent of Total Sum of Squares
Program Quartile	36461.492	3	12153.828	32.879	Under 0.001	5.28
Durtation of Bit	32037.105	2	16018.551	43.333	Under 0.001	4.64
Quartile x Duration	1926.335	6	321.056	0.869	Over 0.500	0.28
* Unit	620286.688	1678	369.658			89.80
Total	690711.500	1689	408.947			100.00

An asterisk (*) marks the effect used in testing the preceding effects.

Table 13

Attention by Age and Program Quality

Age of Viewing Group		'Good'	'Bad'	'Special'	'Experimental'	Row Marginal
Basic School	Mean	78.567	64.313	64.878	74.973	70.685
	SD	18.619	25.048	25.684	19.374	
	N	66	32	82	73	
Grades 1 & 2	Mean	76.738	73.379	87.953	86.274	81.086
	SD	21.135	22.694	13.103	15.340	
	N	413	103	64	73	
Grades 3 & 4	Mean	78.772	75.323	79.947	87.919	80.490
	SD	18.745	18.941	19.483	11.362	
	N	456	164	76	74	
Column Marginals	Mean	78.029	71.005	77.593	83.055	77.420

Source of Variation	Sum of Squares	DF	Mean Square	F-Test	$p<$	Percent of Total Sum of Squares
Age	22023.086	2	11011.543	28.496	Under 0.001	3.16
Quality of Program	17747.117	3	5915.703	15.309	Under 0.001	2.55
Age x Quality	13923.902	6	2320.650	6.005	Under 0.001	2.00
* Unit	643016.188	1664	386.428	Not Tested		92.29
Total	696710.188	1675	415.946			100.00

An asterisk (*) marks the effect used in testing the preceding effects

Table 15

Attention by Age and Program Quartile

Age of Viewing Group		First	Second	Third	Fourth	Row Marginals
Basic	Mean	84.000	80.262	69.344	53.106	71.678
	SD	13.601	18.744	19.176	24.771	
	N	60	61	64	66	
Grades 1 & 2	Mean	85.256	83.865	74.743	71.853	78.934
	SD	18.188	18.205	21.642	20.220	
	N	156	157	167	211	
Grades 3 & 4	Mean	84.827	79.709	77.043	75.882	79.365
	SD	16.036	19.183	19.654	19.057	
	N	185	196	184	262	
Column Marginals	Mean	84.694	81.266	73.710	66.947	76.659

Source of Variation	Sum of Squares	DF	Mean Square	F-Test	p <	Percent of Total Sum of Squares
Age	16721.938	2	8360.969	22.734	Under 0.001	2.24
Program of Quartile	63526.496	3	21175.496	57.577	Under 0.001	8.50
Age x Quartile	21128.055	6	3521.342	9.575	Under 0.001	2.83
* Unit	646189.625	1757	367.780	Not Tested		86.44
Total	747566.000	1768	422.831			100.00

An asterisk (*) marks the effect used in testing the preceding effects .

Table 14

Attention by Age and Type of Program Segment

Type of Program Segment		Basic School	Age of Viewing Group Grades 1 & 2	Grades 3 & 4	Row Marginals
Film	Mean	75.290	82.161	83.079	80.177
	SD	22.384	19.378	15.009	
	N	62	193	214	
Animation	Mean	66.368	78.728	82.455	75.850
	SD	24.407	17.933	18.310	
	N	19	92	110	
Street Scenes	Mean	72.500	78.566	74.096	75.054
	SD	18.928	19.348	15.562	
	N	12	53	73	
Street Scenes With Muppets	Mean	70.476	74.738	71.813	72.342
	SD	20.532	18.021	17.622	
	N	21	61	75	
Muppets	Mean	62.781	68.982	73.869	68.544
	SD	22.399	21.385	19.710	
	N	32	110	130	
Studio	Mean	72.556	80.571	81.750	78.202
	SD	28.156	17.480	19.568	
	N	18	70	88	
Column Marginals	Mean	69.995	77.291	77.844	75.043

Source of Variation	Sum of Squares	DF	Mean Square	F-Test	$p <$	Percent of Total Sum of Squares
Type of Segment	11169.762	5	2233.952	6.293	Under 0.001	2.12
Age	9843.512	2	4921.754	13.865	Under 0.001	1.87
Type x Age	3799.412	10	379.941	1.070	0.383	0.72
* Unit	502306.563	1415	354.987	Not Tested		95.29
Total	527119.188	1432	368.100			100.00

An asterisk (*) marks the effect used in testing the preceding effects.

Table 16

Attention by Age and Duration of Bit

Age of Viewing Group			≤ 1 Minute 1	2-3 Minutes 2	> 3 Minutes 3	Row Marginals
Basic	1	Mean	75.454	69.841	58.810	68.035
		SD	25.498	19.861	21.940	
		N	97	151	21	
Grades 1 & 2	2	Mean	79.392	78.298	67.563	75.084
		SD	22.001	18.666	19.295	
		N	273	312	64	
Grades 3 & 4	3	Mean	81.951	77.223	68.184	75.786
		SD	21.426	17.132	22.725	
		N	327	386	76	
Column Marginals		Mean	78.932	75.121	64.852	72.968

Source of Variation	Sum of Squares	DF	Mean Square	F-Test	p <	Percent of Total Sum of Squares
Age	9375.758	2	4687.879	11.436	Under 0.001	1.28
Duration of Bit	27056.934	2	13528.465	33.001	Under 0.001	3.69
Age x Duration	723.296	4	180.824	0.441	Over 0.500	0.10
* Unit	696075.813	1698	409.938	Not Tested		94.93
Total	733231.688	1706	429.796			100.00

An asterisk (*) marks the effect used in testing the preceding effects.

Table 16a

Attention by Age of Viewers, Bit Duration and Program Quartile

(Analysis of Variance)

Source	Sum of Squares	DF	Mean Square	F-Test	$p <$	Percent of Total Sum of Squares
Program Quartile	38797.973	3	12932.656	36.741	Under 0.001	5.82
Duration of Bit	20121.824	2	10060.910	28.582	Under 0.001	3.02
Age of Viewers	8650.777	2	4325.387	12.288	Under 0.001	1.30
Quartile x Duration	2044.677	6	340.780	0.968	0.445	0.31
Quartile x Age	10465.734	6	1744.289	4.955	Under 0.001	1.57
Duration x Age	473.608	4	118.402	0.336	Over 0.500	0.07
Quartile x Duration x Age	5331.441	12	444.287	1.262	0.235	0.80
* Unit	580795.813	1650	351.997	Not Tested		87.12
Total	666681.625	1685	395.657			100.00

An asterisk (*) marks the effect used in testing the preceding effects.

Table 17

Overall Attention by Type of Program Segment and Week of Viewing

(All Ages Combined)

			Type of Program Segment						
Viewing Week			Film	Animation	Street Scenes	Street With Muppets	Muppets	Studio	Row Marginals
One	1	Mean	82.169	78.119	79.946	75.409	76.356	81.419	78.903
		SD	14.796	14.588	13.888	19.632	15.133	13.808	
		N	83	67	37	22	45	31	
Two	2	Mean	81.179	77.111	67.261	65.150	62.780	80.075	72.259
		SD	18.659	20.854	19.108	23.324	22.086	21.751	
		N	67	27	23	20	59	40	
Three	3	Mean	77.627	82.378	67.885	72.158	72.421	76.792	74.877
		SD	21.017	19.304	20.170	15.252	20.811	21.410	
		N	102	37	26	57	57	53	
Four	4	Mean	81.302	76.344	83.045	75.630	68.726	83.821	78.145
		SD	18.656	26.999	11.733	16.406	21.565	15.751	
		N	159	32	22	46	73	28	
Repeat	5	Mean	89.780	82.492	78.200	74.154	76.711	83.000	80.723
		SD	11.545	17.831	16.900	23.119	20.851	23.468	
		N	59	59	30	13	38	25	
Column Marginals		Mean	82.411	79.289	75.267	72.500	71.399	81.022	76.981

Source of Variation	Sum of Squares	DF	Mean Square	F-Test	p<	Percent of Total Sum of Squares
Week of Viewing	9864.324	4	2466.081	7.017	Under 0.001	1.85
Type of Segment	18915.199	5	3783.040	10.764	Under 0.001	3.54
Week x Segment Type	10439.879	20	521.994	1.485	0.078	1.96
* Unit	494491.500	1407	351.451	Not Tested		92.65
Total	533710.875	1436	371.665			100.00

An asterisk (*) marks the effect used in testing the preceding effects.

Table 18

Overall Attention by Viewing Week and Program Quartile

(All Ages Combined)

Program Quartile			One 1	Two 2	Three 3	Four 4	Repeat 5	Row Marginals
First	1	Mean	84.507	80.140	82.466	86.073	89.378	84.513
		SD	14.568	20.187	16.673	14.926	15.477	
		N	67	57	73	96	74	
Second	2	Mean	83.700	79.910	76.949	82.750	84.922	81.646
		SD	16.517	20.511	19.251	14.871	19.269	
		N	60	67	79	96	77	
Third	3	Mean	77.894	65.227	71.973	74.731	80.959	74.157
		SD	15.104	24.075	23.746	18.820	17.766	
		N	66	66	74	108	74	
Fourth	4	Mean	71.182	70.389	71.567	63.988	76.504	70.726
		SD	19.356	24.105	20.068	26.831	18.471	
		N	121	72	120	81	121	
Column Marginals		Mean	79.321	73.917	75.739	76.885	82.941	77.760

Source of Variation	Sum of Squares	DF	Mean Square	F-Test	p<	Percent of Total Sum of Squares
Program Quartile	48218.055	3	16072.684	43.293	Under 0.001	7.12
Week of Viewing	15314.980	4	3828.745	10.313	Under 0.001	2.26
Quartile x Week	9392.176	12	782.681	2.108	0.014	1.39
* Unit	604766.000	1629	371.250	Not Tested		89.24
Total	677691.063	1648	411.220			100.00

An asterisk (*) marks the effect used in testing the preceding effects.

Table 19

Overall Attention by Viewing Week and Duration of Bit

(All Ages Combined)

		Duration of Bit			
Viewing Week		1 Minute	2-3 Minutes	3 Minutes	Row Marginal
One	Mean	78.233	77.229	73.500	76.321
	SD	19.004	16.340	19.659	
	N	133	144	20	
Two	Mean	75.483	73.807	65.258	71.516
	SD	25.926	20.912	18.945	
	N	87	119	31	
Three	Mean	79.276	70.523	65.703	71.834
	SD	21.293	18.398	21.906	
	N	156	130	37	
Four	Mean	80.465	75.844	63.485	73.265
	SD	22.077	18.557	23.708	
	N	142	225	33	
Repeat	Mean	86.189	81.383	67.643	78.405
	SD	18.771	16.508	22.098	
	N	132	162	28	
Column Marginals	Mean	79.929	75.757	67.118	74.268

Source of Variation	Sum of Squares	DF	Mean Square	F-Test	p <	Percent of Total Sum of Squares
Week of Viewing	6476.129	4	1619.032	4.140	0.003	1.00
Duration of Bit	25720.445	2	12860.223	32.884	Under 0.001	3.97
Week x Duration	4803.363	8	600.420	1.535	0.141	0.74
* Unit	611646.438	1564	391.078	Not Tested		94.30
Total	648646.313	1578	411.056			100.00

An asterisk (*) marks the effect used in testing the preceding effects.

Table 20

Attention by Age of Viewers, Type of Program Segment and Week of Viewing

(Analysis of Variance)

Source of Variation	Sum of Squares	DF	Mean Square	F-Test	p <	Percent of Total Sum of Squares
Type of Segment	20090.848	1	20090.848	61.509	Under 0.001	5.03
Week of Viewing	11695.418	3	3898.473	11.935	Under 0.001	2.93
Age of Viewers	75.742	1	75.742	0.232	Over 0.500	0.02
Type x Week	7032.012	3	2344.004	7.176	Under 0.001	1.76
Type x Age	244.552	1	244.552	0.749	0.387	0.06
Week x Age	9928.230	3	3309.410	10.132	Under 0.001	2.48
Type x Week x Age	805.257	3	268.419	0.822	0.482	0.20
* Unit	349822.688	1071	326.632	Not Tested		87.52
Total	399694.500	1086	368.043			100.00

An asterisk (*) marks the effect used in testing the preceding effects.

Table 21

Attention by Age of Viewers, Program Quartile and Week of Viewing

(Analysis of Variance)

Source of Variation	Sum of Squares	DF	Mean Square	F-Test	p <	Percent of Total Sum of Squares
Program Quartile	22638.379	1	22638.379	61.889	Under 0.001	4.84
Week of Viewing	9757.785	3	3252.595	8.892	Under 0.001	2.09
Age of Viewers	103.822	1	103.822	0.284	Over 0.500	0.02
Quartile x Week	1731.597	3	577.199	1.578	0.194	0.37
Quartile x Age	1934.239	1	1934.239	5.288	0.022	0.41
Week x Age	8580.805	3	2860.268	7.819	Under 0.001	1.83
Quartile x Week x Age	2802.974	3	934.324	2.554	0.055	0.60
* Unit	420292.875	1149	365.790	Not Tested		89.84
Total	467842.250	1164	401.926			100.00

An asterisk (*) marks the effect used in testing the preceding effects.

Table 22

Attention by Age of Viewers, Duration of Bit and Week of Viewing

(Analysis of Variance)

Source of Variation	Sum of Squares	DF	Mean Square	F-Test	p <	Percent of Total Sum of Squares
Duration of Bit	13461.527	2	6730.762	18.347	Under 0.001	3.18
Week of Viewing	5064.043	3	1688.014	4.601	0.004	1.20
Age of Viewers	129.024	1	129.024	0.352	Over 0.500	0.03
Duration x Week	4093.425	6	682.237	1.860	0.085	0.97
Duration x Age	1126.920	2	563.460	1.536	0.216	0.27
Week x Age	8857.129	3	2952.376	8.048	Under 0.001	2.09
Duration x Week x Age	3149.386	6	524.898	1.431	0.200	0.74
* Unit	387411.188	1056	366.866	Not Tested		91.52
Total	423292.438	1079	392.301			100.00

An asterisk (*) marks the effect used in testing the preceding effects.

Table 23

Attention by Type of Segment, Program Quartile and Week of Viewing

(Analysis of Variance for All Ages Combined)

Source of Variation	Sum of Squares	DF	Mean Square	F-Test	p ✓	Percent of Total Sum of Squares
Program Quartile	31880.367	1	31880.367	95.678	Under 0.001	6.67
Type of Setment	18384.508	1	18384.508	55.175	Under 0.001	3.85
Week of Viewing	7293.117	3	2431.039	7.296	Under 0.001	1.53
Quartile x Type	54.970	1	54.970	0.165	Over 0.500	0.01
Quartile x Week	1191.432	3	397.144	1.192	0.312	0.25
Type x Week	5359.730	3	1786.577	5.362	0.002	1.12
Quartile x Type x Week	680.887	3	226.962	0.681	Over 0.500	0.14
*Unit	413173.188	1240	333.204	Not Tested		86.43
Total	478017.938	1255	380.891			100.00

An asterisk (*) marks the effect used in testing the preceding effects.

Table 24

Attention by Type of Segment, Duration of Bit and Week of Viewing

(Analysis of Variance for All Ages Combined)

Source of Variation	Sum of Squares	DF	Mean Square	F-Test	$p <$	Percent of Total Sum of Squares
Duration of Bit	5395.301	2	2697.650	7.463	0.001	1.22
Type of Segment	6054.891	1	6054.891	16.753	Under 0.001	1.37
Week of Viewing	4419.594	3	1473.198	4.076	0.007	1.00
Duration x Type	405.095	2	202.547	0.560	Over 0.500	0.09
Duration x Week	4745.023	6	790.837	2.188	0.042	1.07
Type x Week	2864.974	3	954.991	2.642	0.049	0.65
Duration x Type x Week	2876.088	6	479.348	1.326	0.243	0.65
* Unit	414947.750	1148	361.453	Not Tested		93.94
Total	441708.500	1171	377.206			100.00

An asterisk (*) marks the effect used in testing the preceding effects.

Table 25

Attention by Bit Duration, Program Quartile and Week of Viewing

(Analysis of Variance for All Ages Combined)

Source of Variation	Sum of Squares	DF	Mean Square	F-Test	$p <$	Percent of Total Sum of Squares
Program Quartile	29682.918	1	29682.918	79.948	Under 0.001	5.79
Duration of Bit	12924.254	2	6462.125	17.405	Under 0.001	2.52
Week of Viewing	2631.864	3	877.288	2.363	0.070	0.51
Quartile x Duration	725.474	2	362.737	0.977	0.377	0.14
Quartile x Week	2721.738	3	907.246	2.444	0.063	0.53
Duration x Week	1734.742	6	289.124	0.779	Over 0.500	0.34
Quartile x Duration x Week	5971.922	6	995.320	2.681*	0.014	1.16
* Unit	456669.250	1230	371.276	Not Tested		89.01
Total	513061.875	1253	409.467			100.00

An asterisk (*) marks the effect used in testing the preceding effects.

Table 26

Attention by Centrality of Music for Different Age Groups

Centrality of Music	Basic School			Grades 1 & 2			Grades 3 & 4		
	Mean	SD	N	Mean	SD	N	Mean	SD	N
Overall	69.969	22.672	56	78.916	18.984	167	79.043	17.336	185
Central	75.231	22.461	25	81.355	19.571	76	78.278	16.431	79
Supportive	64.900	21.743	30	76.879	18.232	91	79.613	17.960	106

	Mean Square	DF	Mean Square	DF	Mean Square	DF
Among Groups	1486.441	1	829.622	1	80.264	1
Within Groups	505.542	54	359.750	165	303.392	183

F-Test	p <	F-Test	p <	F-Test	p <
2.940	.093	2.306	.131	0.265	Over .500

Table 27

Attention by Sound Effects for Different Age Groups

	Basic School			Grades 1 & 2			Grades 3 & 4		
Sound Effects	Mean	SD	N	Mean	SD	N	Mean	SD	N
Overall	68.783	21.931	69				81.416	16.861	226
Central	61.667	24.003	24				80.596	17.850	57
Supportive	72.578	19.719	45				81.692	16.505	169

	Mean Square	DF	Mean Square	DF	Mean Square	DF
Among Groups	1863.177	1			50.800	1
Within Groups	467.526	67			286.595	224

F-Test	$p <$	F-Test	$p <$	F-Test	$p <$
3.985	.050			0.177	Over .500

Table 29

Attention by Type of Voice for Different Age Groups

Voice Type	Basic School			Grades 1 & 2			Grades 3 & 4		
	Mean	SD	N	Mean	SD	N	Mean	SD	N
Overall	67.815	23.304	146	77.669	19.690	350	76.816	18.309	403
Adult Live	69.667	20.140	51	81.000	20.025	111	79.071	17.904	126
Children Live	75.556	13.022	9	78.061	17.512	33	79.658	12.964	38
Adult Animation	60.591	28.300	22	76.057	21.105	35	80.949	19.116	39
Child Animation	79.000	10.000	2	80.750	4.085	4	71.500	18.808	8
Muppet	60.387	24.352	31	69.421	20.899	76	72.170	19.751	88
Muppet & Adult	71.824	20.825	17	75.024	18.933	41	73.674	18.373	46
Muppet & Children	55.000	0.0	1	90.200	10.628	5	74.000	14.166	3
Adult & Children	86.364	13.452	11	83.647	11.646	34	79.395	13.695	43
	39.500	30.500	2	89.545	13.371	11	71.833	25.677	12

	Mean Square	DF	Mean Square	DF	Mean Square	DF
Among Groups	1206.026	8	1296.722	8	600.103	8
Within Groups	508.318	137	367.516	341	330.687	394

F-Test	$p <$	F-Test	$p <$	F-Test	$p <$
2.373	.021	3.528	Under .001	1.815	.073

Table 28

Attention by Number of Voices for Different Age Groups

Number of Voices	Basic School			Grades 1 & 2			Grades 3 & 4		
	Mean	SD	N	Mean	SD	N	Mean	SD	N
Overall	67.580	23.441	143	77.567	19.702	351	76.841	18.337	402
Single	64.814	24.782	59	78.291	18.539	117	80.197	17.294	132
Two	66.041	21.745	49	73.445	20.968	110	72.242	19.432	128
Group	72.583	20.205	12	80.659	13.345	44	82.068	11.750	44
Several	74.000	19.499	10	78.070	18.359	43	77.281	14.333	57
Single & Group	82.000	16.497	12	83.629	24.283	35	75.615	21.466	39
Other	59.000	0.0	1	77.000	23.000	2	46.000	46.000	2

	Mean Square	DF	Mean Square	DF	Mean Square	DF
Among Groups	1441.430	5	729.586	5	1473.460	5
Within Groups	520.961	137	384.353	345	322.725	396

F-Test	p <	F-Test	p <	F-Test	p <
2.767	.021	1.898	.095	4.566	Under .001

Table 30

Attention by Voice Content for Different Age Groups

	Basic School			Grades 1 & 2			Grades 3 & 4		
Voice Content	Mean	SD	N	Mean	SD	N	Mean	SD	N
Overall	67.750	23.534	136	77.647	19.536	326	76.560	18.304	377
Singing Alphabet	80.000	6.519	4	75.222	8.753	9	73.308	14.349	13
Singing Numbers	60.000	7.000	2	82.714	11.342	7	84.231	12.843	13
Saying Alphabet	64.929	25.872	28	78.343	17.342	67	78.587	17.299	80
Saying Numbers	71.897	22.343	29	84.857	13.849	49	80.750	17.520	60
Spelling	59.800	19.041	5	66.286	16.254	7	69.143	19.268	7
Labeling	67.650	25.488	20	80.667	23.895	45	77.019	17.722	53
Conversation	67.333	21.511	45	73.500	20.735	130	74.225	18.514	138
Others	63.000	38.192	3	83.417	15.919	12	67.231	24.835	13

	Mean Square	DF	Mean Square	DF	Mean Square	DF
Among Groups	261.938	7	965.825	7	652.041	7
Within Groups	574.139	128	369.976	318	329.928	369

F-Test	p <	F-Test	p <	F-Test	p <
0.456	Over .500	2.611	.013	1.976	.058

Table 31

Attention Differences by Sex of Voice for Different Age Groups

	Basic School			Group 1 & 2			Group 3 & 4		
Sex of Voice	Mean	SD	N	Mean	SD	N	Mean	SD	N
Overall	67.815	23.304	146	77.696	19.664	352	76.864	18.301	405
Male	64.043	23.817	94	76.127	18.984	205	76.622	18.762	254
Female	68.167	24.600	12	76.440	19.667	25	72.214	19.156	28
1 & 2	79.583	13.841	24	77.293	21.411	58	76.706	14.123	51
Group	76.125	17.553	8	81.441	13.710	34	82.210	11.169	38
Male & Group	74.333	19.422	6	79.429	15.647	21	76.000	21.240	25
Female & Group				72.250	40.666	4	84.000	11.916	4
				92.600	12.955	5	74.800	38.065	5

Mean Square	DF	Mean Square	DF	Mean Square	DF
1563.045	4	1163.156	6	325.061	6
502.945	139	374.281	345	335.903	398

F-Test	$p \leq$	F-Test	$p \leq$	F-Test	$p \leq$
3.108	.007	3.108	.006	0.968	.447

Table 32

Attention by Continuity of Music for Different Ages

	Basic School			Grades 1 & 2			Grades 3 & 4		
Continuity of Music	Mean	SD	N	Mean	SD	N	Mean	SD	N
Overall	68.861	22.766	72	77.776	20.928	201	77.801	17.521	216
Continuous	70.878	22.318	49	81.471	18.211	136	79.745	17.037	145
Incidental - Beginning	89.500	0.500	2	82.200	7.359	5	75.000	16.274	7
Incidental - Middle	54.667	34.257	3	76.333	13.111	6	85.000	17.000	6
Incidental - End	62.333	20.200	12	68.394	28.022	33	71.900	17.956	30
Occasional	65.667	19.431	6	71.632	16.007	19	73.000	17.613	27
				33.000	25.000	2			

	Mean Square	DF	Mean Square	DF	Mean Square	DF
Among Groups	445.585	4	1919.733	5	516.360	4
Within Groups	531.672	66	402.226	195	303.448	210

F-Test	p <	F-Test	p <	F-Test	p <
0.838	Over .500	4.773	Under .001	1.702	.136

Table 33

Attention by Dialect Spoken for Different Age Groups

Dialect Spoken	Basic School Mean	Basic School SD	Basic School N	Grades 1 & 2 Mean	Grades 1 & 2 SD	Grades 1 & 2 N	Grades 3 & 4 Mean	Grades 3 & 4 SD	Grades 3 & 4 N
Overall	68.221	22.865	145	77.690	19.762	345	76.960	18.010	397
'Standard'	68.152	23.091	138	78.373	19.431	311	76.073	18.279	358
'Black'	55.333	8.731	3	77.000	25.277	13	89.182	8.483	11
Spanish	87.500	5.500	2	80.500	17.671	4	81.750	17.369	4
Mixed				74.571	7.762	7	87.375	8.351	8
Muppet & Group				52.750	16.544	4	78.333	15.606	6
Other	73.000	18.000	2	62.167	18.524	6	84.200	13.083	10

Basic School Mean Square	Basic School DF	Grades 1 & 2 Mean Square	Grades 1 & 2 DF	Grades 3 & 4 Mean Square	Grades 3 & 4 DF
257.579	3	836.615	5	683.718	5
536.087	139	385.100	339	320.592	391

Basic School F-Test	Basic School p <	Grades 1 & 2 F-Test	Grades 1 & 2 p <	Grades 3 & 4 F-Test	Grades 3 & 4 p <
0.480	Over .500	2.172	.057	2.133	.061

Table 34

Attention by Kind of Music for Different Age Groups

	Basic School			Grades 1 & 2			Grades 3 & 4		
Kind of Music	Mean	SD	N	Mean	SD	N	Mean	SD	N
Overall	68.861	22.766	72	77.776	20.928	201	77.823	17.558	215
Rhythmic	73.143	23.066	21	78.892	25.392	37	72.024	17.643	41
Melodic	68.714	21.022	49	77.443	20.239	140	78.881	16.140	151
'Soul	—			75.833	16.550	18	84.158	0.0	19
Cool Jazz									
March, Melodrama	—			81.500	17.400	4	91.500	43.000	2
Other				90.500	9.500	2	43.000		2

	Mean Square	DF	Mean Square	DF	Mean Square	DF
Among Groups	898.372	1	101.700	4	1021.828	4
Within Groups	497.371	66	448.840	195	292.697	209

F-Test	p <	F-Test	p <	F-Test	p <
1.806	.124	0.227	Over .500	3.491	.005

Table 36

Attention by Figure/Ground Contrast for Different Age Groups

	Basic School			Grades 1 & 2			Grades 3 & 4		
Figure/Ground Contrast	Mean	SD	N	Mean	SD	N	Mean	SD	N
Overall	68.085	23.115	153	78.008	19.525	373	77.151	18.308	424
Low	47.000	1.000	2	88.600	11.910	10	79.400	18.518	15
Medium	72.803	18.413	66	77.333	20.049	153	76.691	17.292	175
High	64.918	25.704	85	77.995	19.283	210	77.350	19.005	234

	Mean Square	DF	Mean Square	DF	Mean Square	DF
Among Groups	1605.432	2	595.308	2	60.918	2
Within Groups	523.577	150	381.090	370	337.269	421

F-Test	$p <$	F-Test	$p <$	F-Test	$p <$
3.066	.050	1.562	.212	0.181	Over .500

Table 37

Attention by Large Movement on Screen for Different Ages

	Basic School			Grades 1 & 2			Grades 3 & 4		
Large Movement on Screen	Mean	SD	N	Mean	SD	N	Mean	SD	N
Overall	68.085	23.115	153	78.008	19.525	373	77.123	18.320	423
Low	68.207	24.793	29	76.878	18.895	90	72.869	18.137	99
Mediun	65.523	21.891	88	75.881	19.505	194	77.140	19.169	221
High	74.250	23.454	36	83.786	19.048	89	81.175	15.492	103

	Mean Square	DF	Mean Square	DF	Mean Square	DF
Among Groups	973.073	2	1981.644	2	1740.665	2
Within Groups	532.008	150	373.598	370	329.734	420

F-Test	p <	F-Test	p <	F-Test	p <
1.829	.165	5.304	.006	5.279	.006

Table 38

Attention by Setting for Different Age Groups

Setting	Basic School			Grades 1 & 2			Grades 3 & 4		
	Mean	SD	N	Mean	SD	N	Mean	SD	N
Overall	68.213	23.252	150	78.057	19.518	369	77.113	18.388	417
Studio (Limbo)	67.846	26.496	65	78.037	20.958	163	77.953	20.330	172
Interior - Home	61.583	21.804	12	73.576	21.132	33	68.789	17.622	38
Interior - Other	62.857	19.119	7	67.895	22.817	19	75.933	14.243	30
Exterior - City	73.824	19.834	34	79.493	16.924	75	76.372	16.079	94
Exteriot - Country	66.000	18.547	12	77.091	16.701	33	84.194	12.468	31
Fantasy	62.455	19.983	11	84.652	13.968	23	80.292	20.026	24
Exterior - Other	72.667	17.944	9	83.130	14.405	23	76.429	17.537	28

	Mean Square	DF	Mean Square	DF	Mean Square	DF
Among Groups	401.489	6	733.775	6	776.196	6
Within Groups	550.278	143	376.166	362	332.521	410

F-Test	$p <$	F-Test	$p <$	F-Test	$p <$
0.730	Over .500	1.951	.072	2.334	.032

Table 39

Attention by Visual Mode for Different Age Groups

	Basic School			Grades 1 & 2			Grades 3 & 4		
Visual Mode	Mean	SD	N	Mean	SD	N	Mean	SD	N
Overall	68.542	22.970	153	78.011	19.498	371	77.234	18.342	419
Video Tape	69.977	22.000	86	76.437	20.775	208	75.184	18.162	239
Animation	65,423	25.462	52	79.342	17.358	120	80.130	19.519	131
Film	71.133	17.515	15	81.907	17.878	43	79.490	14.185	49

	Mean Square	DF	Mean Square	DF	Mean Square	DF
Among Groups	391.661	2	689.807	2	1175.298	2
Within Groups	532.935	150	379.535	368	333.189	416

F-Test	p <	F-Test	p <	F-Test	p <
0.735	.482	1.818	.164	2.527	.031

Table 40

Attention by Particular Muppet for Different Age Groups

Muppet	Basic School			Grades 1 & 2			Grades 3 & 4		
	Mean	SD	N	Mean	SD	N	Mean	SD	N
Overall	64.898	23.027	59	73.441	21.474	143	73.266	18.351	158
Ernie & Burt	55.600	22.831	10	64.577	23.337	26	64.759	18.836	29
Cookie	55.000	0.0	1	78.250	21.684	8	80.500	12.806	8
Oscar	72.875	19.458	8	79.389	16.720	18	74.316	15.624	19
Big Bird	77.333	15.965	9	73.160	16.186	25	75.538	15.877	26
Kermit	40.000	23.043	6	59.400	21.158	10	70.636	25.843	11
Grover	53.000	20.579	4	79.417	16.988	12	74.500	12.888	14
Any Muppet	70.809	19.500	21	76.875	23.781	40	74.977	19.355	44

	Mean Square	DF	Mean Square	DF	Mean Square	DF
Among Groups	985.349	6	734.157	6	400.325	6
Within Groups	468.010	50	448.282	134	335.622	149

F-Test	p <	F-Test	p <	F-Test	p <
2.105	.053	1.638	.120	1.193	.308

Table 41

Attention by Age and Type of Character for Different Age Groups

Age & Type of Character	Basic School Mean	Basic School SD	Basic School N	Grades 1 & 2 Mean	Grades 1 & 2 SD	Grades 1 & 2 N	Grades 3 & 4 Mean	Grades 3 & 4 SD	Grades 3 & 4 N
Overall	68.583	23.203	151	77.941	19.550	371	77.060	18.362	417
Adult	69.062	23.553	48	79.513	21.377	113	77.541	19.239	146
Child	67.700	22.307	20	73.976	19.396	41	79.820	15.987	39
Muppet	63.767	24.702	30	72.000	21.137	75	73.329	19.379	88
Adult & Muppet	74.000	13.483	10	73.620	19.807	27	76.444	20.378	27
Adult & Child	68.636	20.592	11	79.706	13.796	17	77.640	14.145	25
Child & Muppet				89.833	9.736	6	72.500	12.540	4
Adult, Child & Muppet	68.000	29.337	3	76.167	16.046	12	74.700	12.426	10
Animal	67.769	25.736	13	84.700	13.158	30	81.242	13.092	33
Other	75.933	21.158	15	83.220	14.671	50	78.311	19.515	45

	Mean Square	DF	Mean Square	DF	Mean Square	DF
Among Groups	252.521	7	972.007	8	295.065	8
Within Groups	558.268	142	370.204	362	338.824	408

F-Test	p <	F-Test	p <	F-Test	p <
0.452	Over .500	2.626	.009	0.871	Over .500

Table 42

Attention by Type of Character for Different Age Groups

Type of Character	Basic School Mean	Basic School SD	Basic School N	Grades 1 & 2 Mean	Grades 1 & 2 SD	Grades 1 & 2 N	Grades 3 & 4 Mean	Grades 3 & 4 SD	Grades 3 & 4 N
Overall	68.424	23.199	151	78.000	19.582	371	77.194	18.326	422
Live	77.467	16.579	30	81.911	18.871	79	79.170	15.957	100
Muppet ('Known')	61.886	23.668	35	71.506	21.226	79	73.092	19.201	98
Live & Muppet	68.647	20.875	17	76.611	17.363	54	72.170	17.055	53
Any Muppet	91.667	1.886	3	79.500	46.942	6	85.750	15.802	4
Objects	58.500	17.604	6	82.350	16.286	20	73.850	15.907	20
Animation	66.977	26.165	44	79.336	17.293	107	81.297	18.551	118
Abstract	67.400	30.526	5	73.000	22.045	3	66.400	38.655	5
Animal	67.429	17.943	7	80.312	15.345	16	78.944	13.385	18
Other	73.250	13.663	4	80.571	12.397	7	75.333	14.648	6

	Basic School Mean Square	Basic School DF	Grades 1 & 2 Mean Square	Grades 1 & 2 DF	Grades 3 & 4 Mean Square	Grades 3 & 4 DF
Among Groups	794.891	8	679.161	8	757.275	8
Within Groups	527.546	142	377.982	362	328.476	413

Basic School F-Test	Basic School p <	Grades 1 & 2 F-Test	Grades 1 & 2 p <	Grades 3 & 4 F-Test	Grades 3 & 4 p <
1.507	.160	1.797	.077	2.305	.020

Table 43

Attention by Live Characters for Different Age Groups

	Basic School			Grades 1 & 2			Grades 3 & 4		
Live Characters	**Mean**	**SD**	**N**	**Mean**	**SD**	**N**	**Mean**	**SD**	**N**
Overall	73.964	19.214	55	78.717	18.544	138	76.481	16.759	156
Susan	72.750	19.747	8	75.625	22.121	16	72.933	13.066	15
Molly	81.000	9.566	4	86.833	11.852	6	88.833	5.113	6
Gordon	75.200	23.060	5	76.385	13.726	13	69.471	19.427	17
Maria	65.000	20.785	6	76.444	14.167	9	79.833	13.668	6
David, Tom	80.000	11.314	3	79.333	19.956	12	84.400	13.215	15
Hooper	68.750	25.714	4	79.889	14.843	9	71.500	16.119	14
Children	64.800	11.391	5	83.714	24.417	14	81.214	13.759	14
Live Group	81.000	10.368	4	75.529	15.707	17	75.158	13.793	19
Other	77.375	18.950	16	79.143	18.265	42	76.240	18.651	50

Mean Square	**DF**	**Mean Square**	**DF**	**Mean Square**	**DF**
214.287	8	151.532	8	455.621	3
404.122	46	358.462	129	273.264	147

F-Test	**p <**	**F-Test**	**p <**	**F-Test**	**p <**
0.530	Over .500	0.423	Over .500	1.667	.111

Table 44

Attention by Kind of Character for Different Age Groups

Kind of Character	Basic School			Grades 1 & 2			Grades 3 & 4		
	Mean	SD	N	Mean	SD	N	Mean	SD	N
Overall	68.842	22.940	139	77.464	19.688	349	77.247	18.410	397
Familiar/Regular	67.770	23.251	61	75.200	20.404	155	74.110	16.903	181
Unfamiliar/Person	66.067	24.400	45	78.385	20.902	109	80.266	18.680	128
Objects	61.833	25.971	6	83.952	13.570	21	72.083	21.954	24
Personality				86.600	5.004	5	85.333	12.931	6
Any Muppet	75.214	17.126	14	74.069	18.368	29	76.788	21.608	3
Letter	81.200	10.943	5	81.083	13.708	12	85.143	10.934	7
Number	76.714	14.489	7	84.706	14.376	17	89.118	11.687	17
Hand									

	Mean Square	DF	Mean Square	DF	Mean Square	DF
Among Groups	451.578	5	510.145	6	1005.120	6
Within Groups	534.266	131	386.195	341	327.793	389

F-Test	p <	F-Test	p <	F-Test	p <
0.845	Over .500	1.321	.240	3.066	.004

Table 45

Attention by Curriculum Area for Different Age Groups

	Basic School			Grades 1 & 2			Grades 3 & 4		
Curriculum Area	Mean	SD	N	Mean	SD	N	Mean	SD	N
Overall	67.94	23.231	147	78.07	19.429	364	77.289	18.383	415
Pre-reading Goals	62.73	25.812	49	77.08	18.395	212	79.313	19.114	134
Number Goals	72.52	24.092	25	85.63	13.307	63	81.841	16.949	82
Geometric Forms	40.00	26.048	4	80.22	17.549	9	62.444	29.534	9
Perceptual Discriminator	58.57	16.706	7	75.86	13.007	15	71.312	16.970	16
Relational Concepts	71.09	18.138	11	74.00	22.603	27	77.613	15.271	31
Classification	75.00	0.0	1	66.20	15.677	5	66.167	16.046	6
Making Inferences	74.00	15.000	2	69.71	18.653	7	68.657	18.154	7
Generating Explanations	73.00	0.0	1	84.00	8.216	4	88.000	6.819	4
Evaluating Explanations	77.33	18.080	3	71.93	20.398	15	76.333	11.728	15
Self	70.20	17.787	10	74.95	30.536	20	67.087	15.899	23
Social Units	76.60	12.784	5	74.83	16.456	6	64.400	13.544	10
Social Interactions	71.57	16.860	7	78.00	22.291	20	76.300	19.721	20
Man-made Environment	69.44	22.598	9	70.84	24.288	19	70.913	18.287	23
Natural Environment	67.69	17.552	13	82.93	13.800	32	82.853	13.379	34
Quality of Environment	0.0	0.0	0	96.00	0.0	1	90.000	0.0	1

	Mean Square	DF	Mean Square	DF	Mean Square	DF
Among Groups	563.345	14	608.068	14	910.167	14
Within Groups	541.261	132	369.324	349	318.765	400

F-Test	p <	F-Test	p <	F-Test	p <
1.041	.418	1.646	.066	2.855	Under .001

Table 46

Attention by Nature of Affect for Different Age Groups

	Basic School			Grades 1 & 2			Grades 3 & 4		
Nature of Affect	Mean	SD	N	Mean	SD	N	Mean	SD	N
Overall	68.144	23.174	153	77.941	19.547	370	77.178	18.305	416
Positive	67.106	23.717	123	79.187	18.086	289	77.527	18.008	319
Negative	76.286	16.782	14	77.607	24.866	28	75.107	15.400	28
Both	69.000	22.313	16	71.909	23.598	44	76.776	21.803	58
Other				68.144	15.514	9	74.455	11.618	11

	Mean Square	DF	Mean Square	DF	Mean Square	DF
Among Groups	357.395	2	954.254	3	83.020	3
Within Groups	544.267	149	378.448	366	337.720	412

F-Test	p <	F-Test	p <	F-Test	p <
0.657	Over .500	2.521	.058	0.246	Over .500

Table 47

Attention by Visual Noise for Different Age Groups

Visual Noise	Basic School			Grades 1 & 2			Grades 3 & 4		
	Mean	SD	N	Mean	SD	N	Mean	SD	N
Overall	68.200	23.143	150	77.601	19.014	358	77.015	18.466	409
Low	68.744	23.947	117	77.021	19.742	292	77.198	19.290	308
Medium	66.965	19.236	29	78.800	15.676	55	78.662	15.438	80
High	61.250	23.689	4	87.000	9.332	11	68.048	13.598	21

	Mean Square	DF	Mean Square	DF	Mean Square	DF
Among Groups	135.908	2	573.796	2	957.148	2
Within Groups	544.678	147	361.346	355	338.811	406

F-Test	p <	F-Test	p <	F-Test	p <
0.250	Over .500	1.588	.206	2.825	.061

Table 48

Attention by Visual Clarity for Different Age Groups

Visual Clarity	Mean	SD	N	Mean	SD	N	Mean	SD	N
Overall	68.200	23.143	150	77.632	18.997	359	77.056	18.463	410
Low	64.158	25.799	19	78.000	20.125	33	67.377	20.074	53
Medium	64.471	23.423	51	77.600	17.398	115	78.489	16.102	139
High	71.537	21.738	80	77.592	19.639	211	78.495	18.753	218

	Mean Square	DF	Mean Square	DF	Mean Square	DF
Among Groups	955.173	2	1.861	2	2850.664	2
Within Groups	533.530	147	363.917	356	329.390	407

F-Test	p <	F-Test	p <	F-Test	p <
1.790	.171	0.005	Over .500	8.65	Under .001

Table 49

Attention by Integration of Visual and Sound for Different Age Groups

Integration of Sight & Sound	Basic School Mean	Basic School SD	Basic School N	Grades 1 & 2 Mean	Grades 1 & 2 SD	Grades 1 & 2 N	Grades 3 & 4 Mean	Grades 3 & 4 SD	Grades 3 & 4 N
Overall	68.266	23.148	154	78.029	19.481	375	77.139	18.288	425
Integrated, Synchronized	67.500	23.517	138	77.764	19.827	284	75.107	18.671	319
Integrated, Matched	71.750	19.854	12	62.878	14.513	49	82.222	13.884	54
Separate	80.500	8.500	2	75.333	10.914	9	76.909	15.565	11
Integrated, Synchronized & Matched	88.000	3.000	2	73.848	23.010	33	86.317	16.882	41

	Mean Square	DF	Mean Square	DF	Mean Square	DF
Among Groups	434.925	3	604.087	3	2055.276	3
Within Groups	541.442	150	378.731	371	322.967	421

F-Test	p<	F-Test	p<	F-Test	p<
0.803	.494	1.595	.191	6.364	Under .001

Table 50

Attention by Pace for Different Age Groups

	Basic School			Grades 1 & 2			Grades 3 & 4		
Pace	Mean	SD	N	Mean	SD	N	Mean	SD	N
Overall	68.351	23.024	151	78.008	19.525	373	77.176	18.341	421
Slow	81.100	15.469	10	78.514	15.198	35	74.864	14.535	44
Medium	65.733	22.831	116	76.207	20.164	256	75.955	18.985	290
Fast	75.400	23.260	25	83.415	18.072	82	82.414	16.867	87

	Mean Square	DF	Mean Square	DF	Mean Square	DF
Among Groups	1831.278	2	1617.785	2	1526.347	2
Within Groups	516.118	148	375.558	370	331.502	418

F-Test	$p <$	F-Test	$p <$	F-Test	$p <$
3.548	.032	4.308	.015	4.604	.011

Table 51

Attention by Intensity of Humor for Different Age Groups

	Basic School			Grades 1 & 2			Grades 3 & 4		
Intensity of Humor	Mean	SD	N	Mean	SD	N	Mean	SD	N
Overall	67.672	24.131	125	77.790	20.219	319	77.156	19.045	352
Absent	72.308	22.098	52	81.728	18.871	114	76.870	17.602	108
Mild	63.180	24.589	61	76.404	18.851	141	75.381	20.731	168
Moderate	70.417	25.937	12	73.632	24.406	57	81.522	16.287	67
Very Strong				75.429	19.588	7	81.222	15.880	9

	Mean Square	DF	Mean Square	DF	Mean Square	DF
Among Groups	812.762	2	1021.038	3	654.670	3
Within Groups	581.396	121	404.257	315	361.221	348

F-Test	p <	F-Test	p <	F-Test	p <
1.398	.247	2.526	.058	1.812	.145

Table 52

Attention by 'Location' of Humor for Different Age Groups

	Basic School			Grades 1 & 2			Grades 3 & 4		
Location of Humor	Mean	SD	N	Mean	SD	N	Mean	SD	N
Overall	66.500	24.593	82	76.083	21.505	217	77.329	19.474	252
Primarily Verbal	77.800	21.118	10	71.393	20.100	28	69.343	19.833	35
Primarily Visual	69.585	23.074	41	78.778	22.269	99	81.785	15.808	107
Both Verbal & Visual	58.774	25.267	31	74.562	20.775	89	75.413	21.454	109

	Mean Square	DF	Mean Square	DF	Mean Square	DF
Among Groups	1172.431	2	513.482	2	1630.936	2
Within Groups	590.755	78	463.931	213	365.621	248

F-Test	p <	F-Test	p <	F-Test	p <
1.985	.124	1.107	.348	4.461	.005

Table 53

Attention by Mode of Humor for Different Age Groups

	Basic School			Grades 1 & 2			Grades 3 & 4		
Mode of Humor	Mean	SD	N	Mean	SD	N	Mean	SD	N
Overall	65.307	24.931	75	75.378	21.784	193	77.363	18.764	223
Nonsense-Verbal	68.296	26.145	27	76.283	21.685	46	80.911	19.925	56
Duping-Verbal	66.571	26.147	7	78.133	14.212	15	75.625	18.134	16
Incongruity	-	-	-	-	-	-	68.250	22.050	4
Looks Silly	61.000	19.859	5	75.500	21.192	28	82.778	13.336	36
Mistake	61.118	29.237	17	80.210	23.828	38	74.046	18.693	43
Context	63.643	16.426	14	71.800	23.543	40	73.429	16.372	42
	70.600	21.322	5	69.125	18.077	24	76.538	22.457	26

	Mean Square	DF	Mean Square	DF	Mean Square	DF
Among Groups	137.024	5	459.934	5	546.902	6
Within Groups	673.463	68	477.565	186	348.323	216

F-Test	p <	F-Test	p <	F-Test	p <
0.203	Over .500	0.963	.452	1.570	.158

Table 54

Attention by Mode of Presentation of Goal for Different Age Groups

Presentation Mode of Goal	Basic School Mean	Basic School SD	Basic School N	Grades 1 & 2 Mean	Grades 1 & 2 SD	Grades 1 & 2 N	Grades 3 & 4 Mean	Grades 3 & 4 SD	Grades 3 & 4 N
Overall	68.510	23.027	153	77.938	19.543	369	77.143	18.317	418
Sequenced	73.840	23.106	25	84.045	13.169	67	81.353	16.451	85
Identify, Match, Label	64.800	23.913	75	78.079	20.327	151	77.699	18.962	166
Conversation	74.000	17.826	9	79.955	14.605	22	80.333	12.109	24
Explanation	70.542	23.058	24	73.409	21.305	88	73.941	17.545	101
Story	78.667	11.870	6	67.421	24.001	19	74.864	22.255	22
Other	67.500	20.141	14	83.545	13.727	22	69.500	19.911	20

	Mean Square	DF	Mean Square	DF	Mean Square	DF
Among Groups	549.142	5	1437.729	5	823.947	5
Within Groups	533.184	147	368.423	363	330.404	412

F-Test	p <	F-Test	p <	F-Test	p <
1.030	.403	31902	.002	2.494	.031

Table 55

Attention by Direction of Speech for Different Age Groups

Direction of Speech	Basic School Mean	Basic School SD	Basic School N	Grades 1 & 2 Mean	Grades 1 & 2 SD	Grades 1 & 2 N	Grades 3 & 4 Mean	Grades 3 & 4 SD	Grades 3 & 4 N
Overall	68.007	23.361	148	77.824	19.524	364	77.087	18.240	412
Addressing Each Other	67.976	21.211	42	76.906	21.718	107	72.711	19.027	142
Addressing Audience	71.333	22.327	54	78.667	18.514	105	80.590	15.718	117
Asking for Participation	84.333	1.247	3	67.000	15.824	5	82.667	7.587	3
Combination 1 & 2	64.946	23.392	27	76.037	19.419	82	74.575	17.784	87
Variation	56.167	32.437	6	80.625	17.496	48	85.574	15.586	47
Other	60.833	30.262	6	83.286	15.673	14	77.846	26.749	13

	Mean Square	DF	Mean Square	DF	Mean Square	DF
Among Groups	361.734	5	247.095	5	1042.144	5
Within Groups	560.252	139	385.264	355	319.440	403

F-Test	p <	F-Test	p <	F-Test	p <
0.646	Over .500	0.641	Over .500	3.262	.002

Table 56

Attention by Bit Duration for Different Age Groups

Bit Duration	Basic School Mean	Basic School SD	Basic School N	Grades 1 & 2 Mean	Grades 1 & 2 SD	Grades 1 & 2 N	Grades 3 & 4 Mean	Grades 3 & 4 SD	Grades 3 & 4 N
Overall	68.565	23.205	154	78.165	19.519	369	77.599	17.949	424
0 - :30	64.864	28.143	22	78.882	21.906	51	83.175	18.885	57
:30 - 1:00	70.552	23.927	29	79.143	15.834	77	81.622	15.455	82
1:00 - 1:30	72.821	21.029	28	80.036	15.548	83	78.011	17.174	93
1:30 - 2:00	72.071	22.407	28	80.316	17.813	38	78.932	14.177	59
2:00 - 2:30	70.000	17.510	13	79.150	25.926	40	75.689	17.861	45
2:30 - 3:00	57.400	18.051	10	72.407	20.615	27	70.514	16.878	35
3:00 - 3:30	70.917	16.657	12	81.619	11.103	21	72.714	17.771	21
3:30 - 4.00	58.429	21.165	7	66.000	23.776	14	75.071	12.702	14
More	57.000	27.936	5	70.667	24.712	18	61.333	27.570	18

	Basic School Mean Square	DF	Grades 1 & 2 Mean Square	DF	Grades 3 & 4 Mean Square	DF
Among Groups	409.398	8	604.289	8	1311.671	8
Within Groups	544.322	145	377.105	360	303.859	415

Basic School F-Test	p <	Grades 1 & 2 F-Test	p <	Grades 3 & 4 F-Test	p <
0.917	Over .500		.123	4.317	Under .001